Nov. 3, 1959 O. F. POLLEYS 2,910,886

MECHANISM FOR ADJUSTING THROTTLES OF A PLURALITY OF ENGINES

Filed May 17, 1957 4 Sheets-Sheet 1

FIG. 1

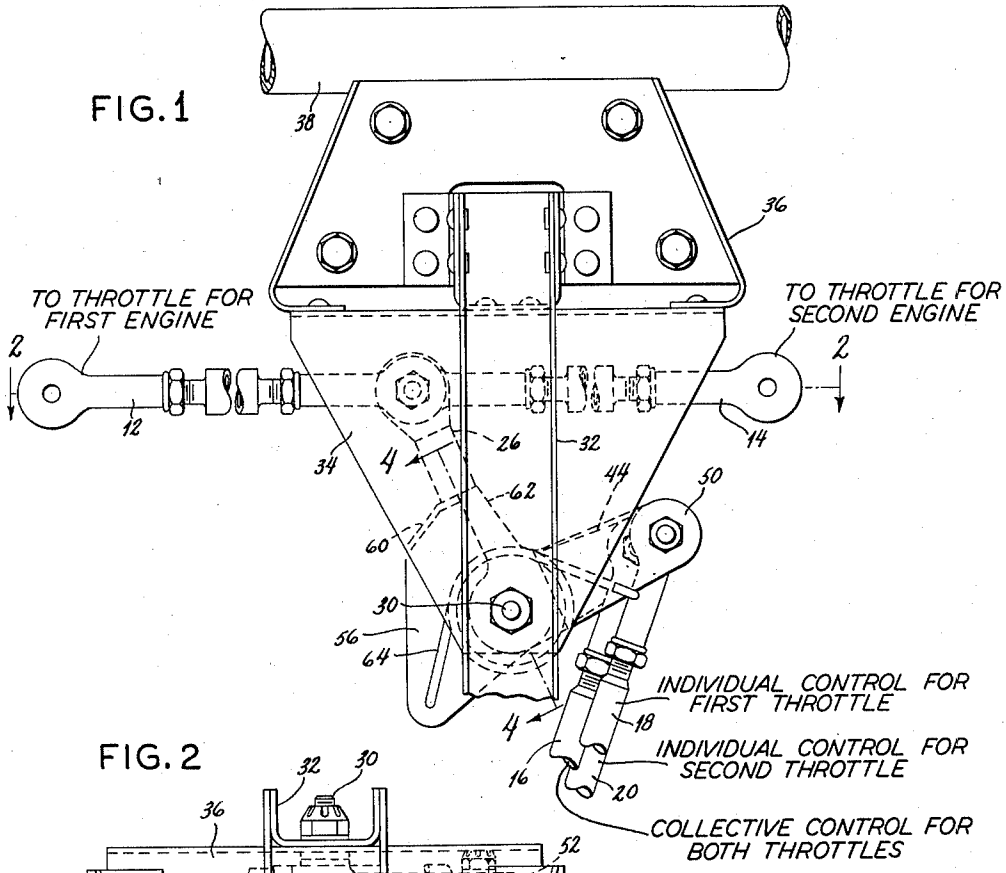

FIG. 2

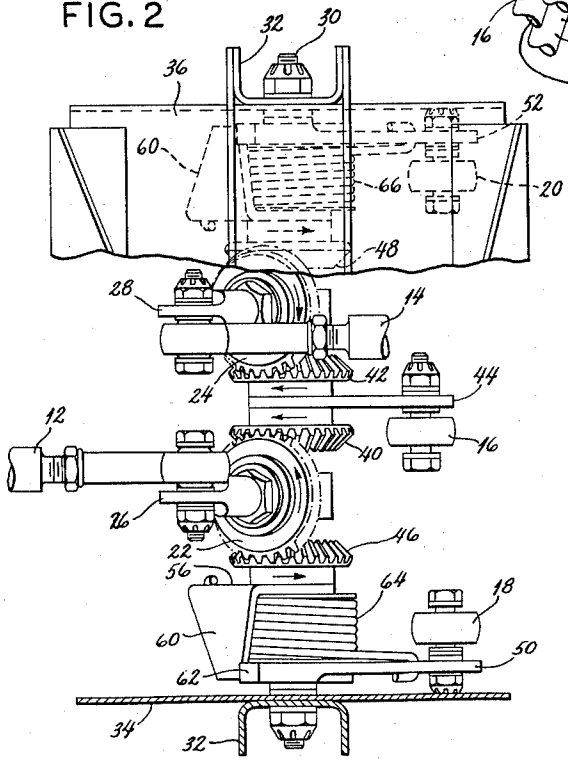

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FIG. 3

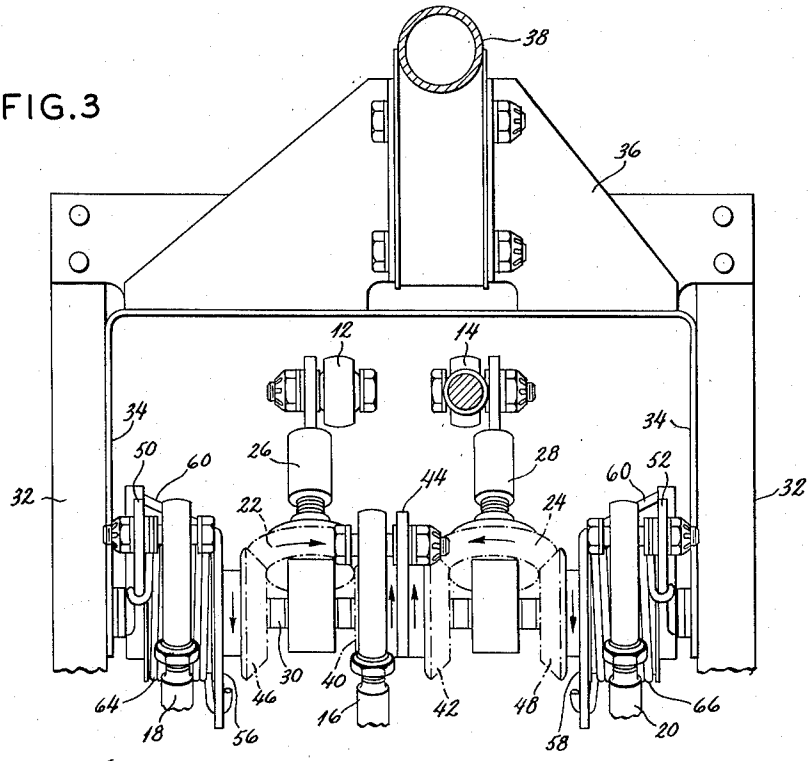


FIG. 4

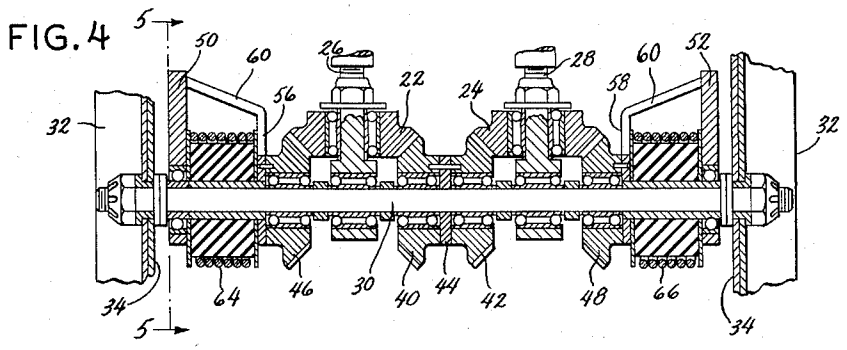
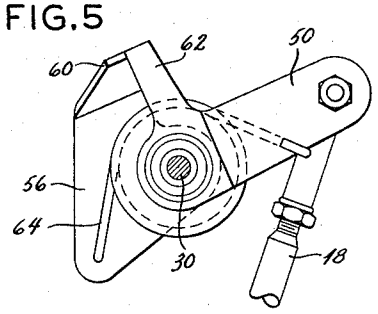


FIG. 5



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MECHANISM FOR ADJUSTING THROTTLES OF A PLURALITY OF ENGINES

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FIG. 6

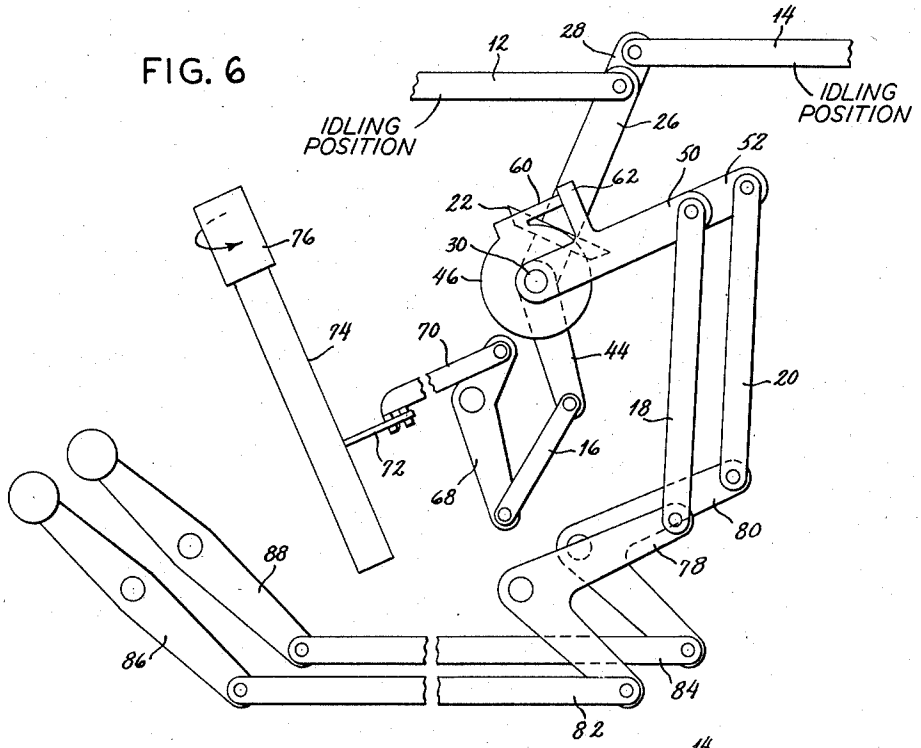
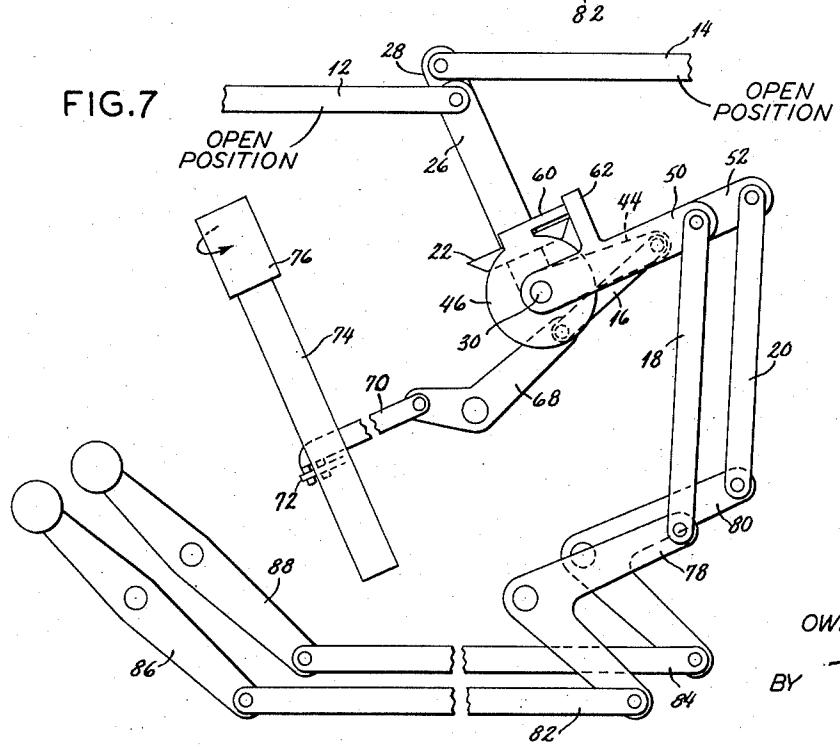


FIG. 7



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MECHANISM FOR ADJUSTING THROTTLES OF A PLURALITY OF ENGINES

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FIG. 8

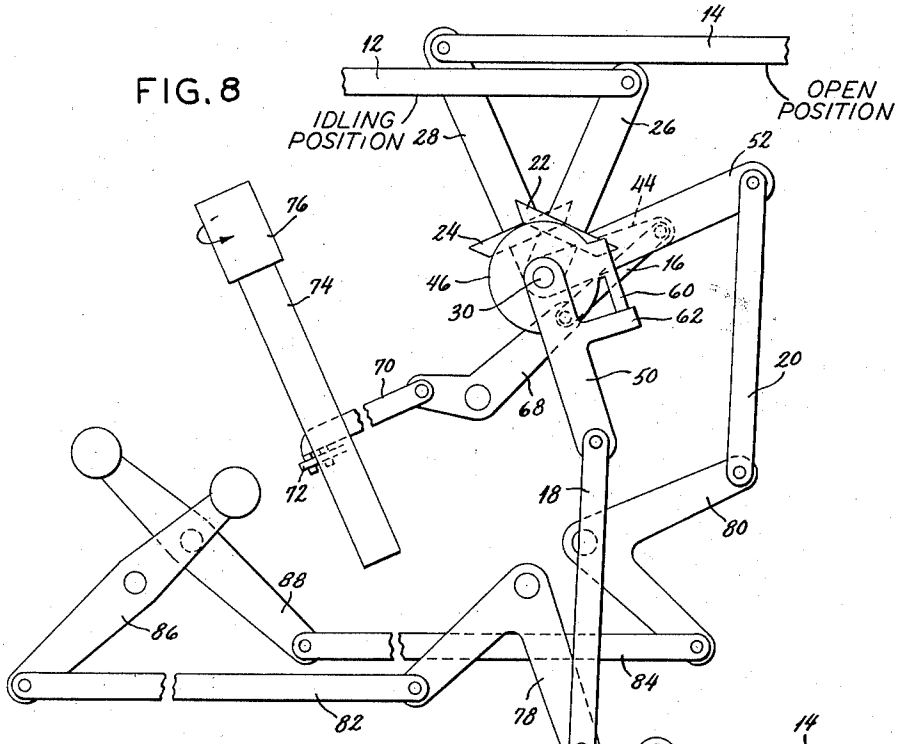
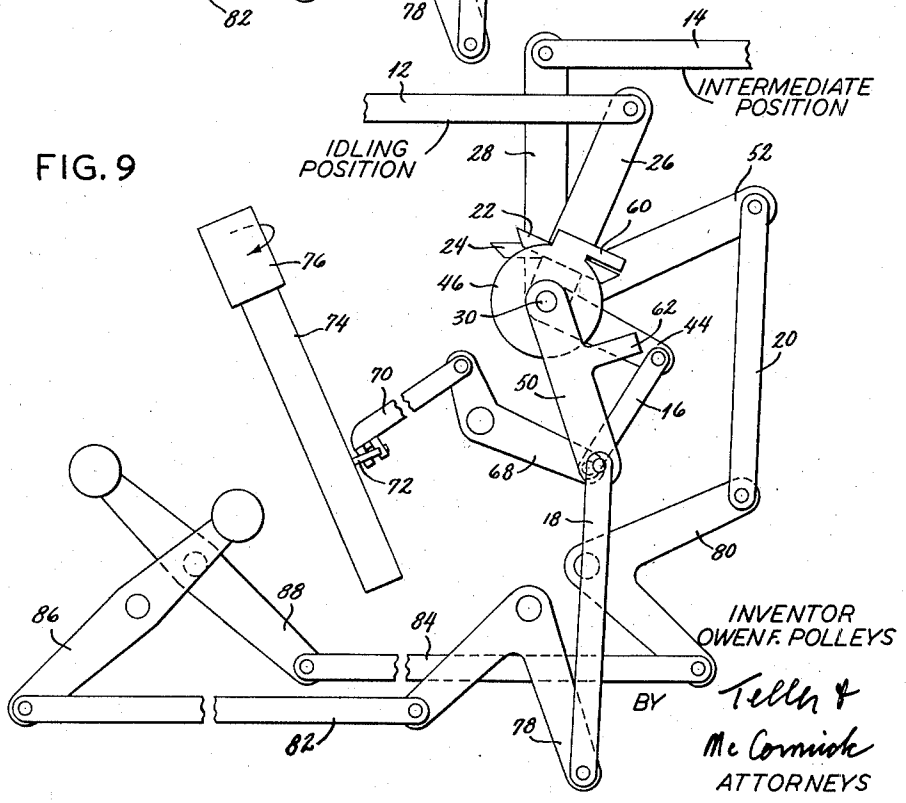


FIG. 9



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United States Patent Office 2,910,886
Patented Nov. 3, 1959

2,910,886

MECHANISM FOR ADJUSTING THROTTLES OF A PLURALITY OF ENGINES

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Application May 17, 1957, Serial No. 659,970

12 Claims. (Cl. 74—480)

The invention relates to a manually controllable mechanism for adjusting the fuel control for a plurality of engines. The fuel control may be adjusted by means of throttles and throttles are hereinafter referred to, but it will be understood that throttles are mentioned merely as examples and that the invention is not so limited. For purposes of illustration it will be assumed that the fuel control or throttles of two engines are to be adjusted.

The general object of the invention is to provide a mechanism for the stated purpose having a manually controllable first actuating device by means of which both throttles may be adjusted in unison and having two separate manually controllable second actuating devices by means of which either throttle may be adjusted independently of the other, said first actuating device on the one hand and the second actuating devices on the other hand being operable independently of each other.

Under certain circumstances, as hereinafter further explained, one of said second actuating devices may so move the connected parts as to interfere with the free movement of one of said throttles by said first actuating device. Another and more specific object of the invention is to provide one or more yieldable connections which enable the first actuating device to move at least one throttle under all conditions.

The drawings show a preferred embodiment of the invention and such embodiment will be described, but it will be understood that various changes may be made from the construction disclosed, and that the drawings and description are not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

Of the drawings:

Fig. 1 is a side view of a mechanism embodying the invention, the throttle operating links being in the positions corresponding to the fully open positions of the throttles.

Fig. 2 is a combined plan and sectional view of the mechanism as shown in Fig. 1, the sectional portion of the view being taken along the line 2—2 of Fig. 1.

Fig. 3 is a right side view of the mechanism as shown in Fig. 1.

Fig. 4 is a fragmentary sectional view taken along the line 4—4 of Fig. 1.

Fig. 5 is a fragmentary sectional view taken along the line 5—5 of Fig. 4.

Fig. 6 is a schematic view of the mechanism as shown in Figs. 1 to 5, but with the throttle links in the positions corresponding to the idling positions of the throttles, this view also showing manually operable first and second actuating devices for the several links.

Fig. 7 is a view similar to Fig. 6, but with the throttle links moved to open throttle positions by means of the first actuating device, these being the positions shown in Figs. 1 to 5.

Fig. 8 is a view similar to Fig. 7, but with one throttle link restored to idling position by one of the second actuating devices.

Fig. 9 is a view similar to Fig. 8, but with the other throttle link moved to an intermediate position by the first actuating device.

The drawings show a mechanism adapted for the control of the throttles of two internal combustion engines, but the invention is not limited to two engines and by relatively simple changes the mechanism may be adapted for the control of the throttles of three or more engines.

Assuming that only two engines are to be controlled, said engines will be referred to respectively as the first and second engines. Referring more particularly to Figs. 1 and 2, the mechanism includes links 12 and 14 adapted respectively for connection with the throttles of the two engines for adjusting said throttles and for thus regulating the actions of the engines. While the invention is not so limited, it is assumed that the mechanism embodying the invention is located between the two or first and second engines, and the links 12 and 14 are shown as extending in opposite directions. The links 12 and 14 are shown in the positions corresponding to the fully open positions of the throttles.

The mechanism also includes a link 16 which is movable by a manually controllable means such as that shown in the schematic Figs. 6 to 9, which means when moved serves to move the links 12 and 14 in unison with resultant uniform adjustment of the throttles of both engines. As shown in Fig. 1, the links 12 and 14 have been moved in unison by said link 16 toward the left to their fully open positions and they are movable in unison by said link toward the right to move the throttles toward or to their idling positions. The mechanism further includes links 18 and 20 which are movable selectively and independently by manually controllable means such as those shown in the schematic Figs. 6 to 9 and each of which when moved serves to move the corresponding throttle link 12 or 14 independently of the other throttle links with resultant independent adjustment of the throttle of the corresponding first or second engine. The links 18 and 20 are shown in Fig. 1 in the positions which correspond to fully open positions of the throttles, as will be hereinafter made fully apparent.

Connected respectively with the two links 12 and 14 are two pivotally movable adjusting elements, said elements respectively having connection at their pivotal axes with said links. Preferably said pivotally movable adjusting elements are gears 22 and 24 and said gears are advantageously bevel gears as shown. Said gears are preferably rotatably mounted on said pivot members or arms 26 and 28, said arms being connected respectively with said throttle links 12 and 14. The pivot members or arms 26 and 28 are preferably supported by and pivotally movable on a single, preferably horizontal, shaft 30, suitable antifriction bearings being interposed between the arms and the shaft. The gears 22 and 24 are rotatable about the radial axes of said pivot members or arms 26 and 28, suitable antifriction bearings being interposed between said gears and said arms. Said gears 22 and 24 are sometimes hereinafter referred to as the "first" gears.

The supporting means for the shaft 30 may be widely varied, but as shown the shaft is supported by vertical channel members 32, 32 connected with vertical plates 34, 34. The members 32, 32 and the plates 34, 34 are connected by a support structure 36 with a bar 38 which may be a portion of the frame of the aircraft.

A movable first actuating device is provided for engaging both of the pivotally movable adjusting elements 22 and 24, and when said elements are gears, such as bevel gears, the first actuating device comprises rigidly connected bevel gears 40 and 42 which mesh respectively

with said first gears 22 and 24. As shown, the gears 40 and 42 are rotatable on the shaft 30, suitable antifriction bearings being interposed between the gears and the shaft. The first actuating device also includes an initial element which is an arm 44 by which the connected gears 40 and 42 are moved, said arm being movable on said shaft 30 and being connected with said link 16. The two gears 40 and 42 are sometimes hereinafter referred to collectively as a member engaging both of said adjusting elements 22 and 24 at positions remote from their pivotal axes.

Two movable second actuating devices are provided for respectively engaging the pivotally movable adjusting elements 22 and 24, and when said elements are gears such as bevel gears, the second actuating devices comprise gears 46 and 48 which mesh respectively with said gears 22 and 24. As shown, the gears 46 and 48 are rotatable on the shaft 30, suitable antifriction bearings being interposed between the gears and the shaft. The second actuating devices also include initial elements which are arms 50 and 52 by which the gears 46 and 48 are respectively moved, said arms being movable on said shaft 30 and being connected respectively with the links 18 and 20. Said gears 46 and 48 are sometimes hereinafter referred to as the "second" gears.

The first actuating device comprising the connected gears 40 and 42 and the arm 44, when moved while the second actuating devices 46, 50 and 48, 52 are stationary, serves to pivotally move said adjusting elements or first gears 22 and 24 in unison and to thus move both of said throttle links 12 and 14 in unison so as to simultaneously move both of the throttles in the opening direction or vice versa.

Each of said second actuating devices 46, 50 and 48, 52, when selectively moved while the first actuating device 40, 42, 44 is stationary, serves to pivotally move the corresponding adjusting element or first gear 22 or 24 independently of the other adjusting element or gear and to thus move the corresponding throttle link 12 or 14 so as to move the corresponding throttle in the closing direction or vice versa.

Two yieldable connections are interposed respectively between the said two throttle links 12 and 14 and the initial elements of one of said actuating devices 40, 42, 44 or 46, 50 or 48, 52. Each yieldable connection serves notwithstanding prior maximum throttle closing movement of the corresponding throttle link 12 or 14 to permit the other throttle link 14 or 12 to be moved in the throttle closing direction by means of the other adjusting element or first gear 24 or 22 and the first actuating device 40, 42, 44. This will be more fully explained in connection with Figs. 6 to 9 of the drawings.

As shown, each yieldable connection is between the second gear 46 or 48 and the corresponding arm 50 or 52. Connectors 56 and 58 are pivotally movable on the shaft 30, said connectors being respectively adjacent the bevel gears 46 and 48 and being respectively rigidly connected therewith. The connector 56 is clearly shown in Fig. 5 and the connector 58 is similar except for reversal of shape. Each of the connectors 56 and 58 has an offset portion 60 which engages a finger 62 on the corresponding arm 50 or 52. A spring 64 is provided which is connected with the arm 50 and with the connector 56 and biases said connector for clockwise movement relatively to said arm. Otherwise stated, the spring 64 tends to hold the connector 56 with the offset portion 60 thereof in engagement with the finger 62 of the arm 50. The arm 50 can be moved counterclockwise from the Fig. 5 position only in unison with the connector 56, and said spring 64 normally causes the connector to move clockwise in unison with said arm. However, if counterclockwise movement of the arm is prevented, said connector can be moved counterclockwise independently of said arm and in opposition to the spring 64.

The schematic Figs. 6, 7, 8 and 9 show the several parts in various positions. The arms 26 and 28 are arbitrarily shown as having different lengths in order that both of them may be seen. Also and for the same reason the arms 50 and 52 are shown as having different lengths.

Fig. 6 shows the several parts in the positions corresponding to the closed or idling positions of the throttles. The link 16 is connected with a bell crank 68, which in turn is connected with a link 70. Said link 70 is connected with an arm 72 projecting from a control stick 74 of the aircraft, and for a helicopter said stick 74 may be the collective pitch stick. A knob 76 is rotatable on the stick 74 and said knob may be manually turned to turn the arm 72 and to move the link 16 and the arm 44 by means of the described connections.

When the link 16 is moved upwardly from the Fig. 6 position, the arm 44 is moved upwardly or counterclockwise. The gears 40 and 42 are moved in the direction of the arrows in Figs. 2 and 3 and the first gears 22 and 24 are rotated respectively counterclockwise and clockwise as indicated in Figs. 2 and 3, the last said gears rolling along the gears 46 and 48 which are stationary. The described rolling movements of the gears 22 and 24 result in uniform movements of the arms 26 and 28 counterclockwise or toward the left. Movements of arms 26 and 28 as last stated causes the links 12 and 14 to move toward the left, that is, toward the fully open positions of the throttles. Thus by means of the rotatable knob 76 the pilot has full control of both throttles for opening or closing them simultaneously. Fig. 7 shows the links 12 and 14 in their open throttle positions. The positions of the several parts in Fig. 7 are the same as in Figs. 1 to 5.

As shown in Fig. 6, the links 18 and 20 are connected respectively with bell cranks 78 and 80 which in turn are connected respectively with links 82 and 84. Said links 82 and 84 are connected respectively with manually controlled levers 86 and 88. As before stated, both engines may be required for take-off, but one engine may be sufficient for sustaining flight. The throttle of either engine may be moved to or toward its idling position independently of the other throttle by means of the corresponding lever 86 or 88 and the connections that have been described.

It may be assumed that it is the throttle of the first engine that is to be moved so as to be restored to idling position, this being the throttle controlled by the link 12. To so move said throttle the corresponding lever 86 is moved from the position shown in Fig. 7 to that shown in Fig. 8. The link 82 is moved toward the left, the bell crank 78 is moved clockwise and the link 18 is moved downwardly. Downward movement of the link 18 causes downward or clockwise movement of the arm 50 to the position shown in Fig. 8. The movement of the arm 50 to the Fig. 8 position causes the connector 60 to similarly move, the connector being moved by the spring 64. The last said movement of the connector 60 causes movement of the gear 46 in the clockwise direction, that is, in the direction of the arrows in Figs. 2 and 3. The gear 40 is now stationary and the gear 22 rolls along said gear 40, thus moving the arm 26 and the link 12 toward the right, that is, in the throttle closing direction. Fig. 8 shows the link 12 in the position corresponding to the idling position of the throttle for the first engine. Locking means, not shown, may engage the lever 86 to hold the throttle in its idling position.

Alternatively, the throttle for the second engine may be moved toward or to its idling position by the lever 88, the manner of operation being similar to that described for the lever 86. The gear 48 is moved in the clockwise direction, that is, in the direction of the arrow in Fig. 3. The gear 42 is now stationary and the gear 24 rolls along said gear 42. Thus the arm 28 and the link 14 are moved toward the right, that is, in the throttle closing direction. Thus the pilot by selecting the lever 86 or the lever 88 can move the throttle of either engine toward

or to its idling position independently of the throttle of the other engine.

It has been previously stated that yieldable connections are interposed respectively between the links **12** and **14** and the initial elements of one of the actuating devices **40**, **42**, **44** or **46**, **50** or **48**, **52**. Preferably and as shown, the yieldable connections are between the gears **46** and **48** and the initial elements **50** and **52** of the second actuating devices. Such connections have been described in detail, and the manner of operation will now be more fully explained.

With the throttle of either engine in idling position or in any intermediate position, the pilot continues to have control of the power by means of the knob **76**, exactly as previously described. For purposes of explanation, it may be assumed that the parts are in the Fig. 8 positions with the first engine idling and with the throttle for the second engine fully open. To control the second engine the pilot may wish to partly close the throttle of the second engine. This is done by turning the knob **76** to move the link **16** downwardly and to move the arm **44** downwardly. As the arm **44** moves downwardly, it turns the gears **40** and **42** in directions opposite to the arrows in Fig. 2. The gear **24** rolls toward the right along the stationary gear **48**, and this results in the movement of the arm **28** and the link **14** toward the right to partly close the second throttle.

During the last described action, the gear **22** tends to roll along the gear **46** and to move the arm **26** and the link **12** toward the right. But the link **12** has already been moved to its maximum extent toward the right. The result is that the gear **22** is rotated in the direction opposite the arrow in Fig. 2 and with its axis remaining stationary. The gear **22** therefore rotates the gear **46** in the counterclockwise direction, that is, in the direction opposite the arrows in Fig. 2. The gear **46** moves the connector **56** in the counterclockwise direction in opposition to the action of the spring **64**. The offset **60** on the connector moves away from the finger **62** on the arm **50** as shown in Fig. 9. Thus the yieldable connection provided by the spring **64** permits movement of the arm **44** by the link **16** and permits control of the first engine. This would be impossible if the gear **46** were fixedly connected with the arm **50**, it being assumed that the lever **86** has been locked as previously stated.

It has been arbitrarily assumed that the throttle for one engine has been moved fully to its idling position. If the last said throttle is in an intermediate position, the knob **76** and the connected parts serve to move both throttles so long as the throttle for the said engine is out of idling position. However, as soon as the last said throttle reaches its idling position, the action is as previously described and one of the connectors **56** and **58** is moved away from the corresponding arm **50** or **52**.

It will be obvious that the mechanism can be operated in a manner alternative to that described. The first actuating device may be retained in the position shown in Fig. 6, and the throttles may be controlled entirely by the second actuating devices by means of the levers **86** and **88**. In this manner the two throttles can be moved or controlled individually but not in unison except as the two levers may be moved in unison.

The invention claimed is:

1. A mechanism for adjusting the throttles of at least two engines to control power, which mechanism comprises in combination, two movable links connectible respectively with the throttles of the engines, two movable pivot members directly connected respectively with said links and movable therewith, two adjusting elements pivotally connected respectively with said pivot members and free from direct connection with said movable links, a movable first actuating device including an initial element and a member pivotally connected with said element and operatively engaging with both of said adjusting elements at positions remote from said pivotal axes, and two selectively and independently movable second actuating devices respectively including initial elements and including members connected respectively with the last said elements and operatively engaging with said adjusting elements at positions remote from said pivotal axes, said first actuating device when moved while the second actuating devices are stationary serving to pivotally move said adjusting elements in unison and to thus move said throttle links in unison so as to simultaneously move the throttles in the opening direction or vice versa and each of said second actuating devices when selectively moved while the first actuating device is stationary serving to pivotally move the corresponding adjusting element independently of the other adjusting element and to thus move the corresponding throttle link so as to move the corresponding throttle in the closing direction or vice versa.

2. A mechanism for adjusting the throttles of at least two engines to control power, which mechanism comprises in combination, two movable links connectible respectively with the throttles of the engines, two movable pivot members directly connected respectively with said links and movable therewith, two adjusting elements pivotally connected respectively with said pivot members and free from direct connnection with said movable links, a movable first actuating device including an initial element and a member pivotally connected with said element and operatively engaging with both of said adjusting elements at positions remote from said pivotal axes, two selectively and independently movable second actuating devices respectively including initial elements and including members connected respectively with the last said elements and operatively engaging with said adjusting elements at positions remote from said pivotal axes, said first actuating device when moved while the second actuating devices are stationary serving to pivotally move said adjusting elements in unison and to thus move said throttle links in unison so as to simultaneously move the throttles in the opening direction or vice versa and each of said second actuating devices when selectively moved while the first actuating device is stationary serving to pivotally move the corresponding adjusting element independently of the other adjusting element and to thus move the corresponding throttle link so as to move the corresponding throttle in the closing direction or vice versa, and a yieldable connection interposed between one of said throttle links and the initial element of one of said actuating devices, said yieldable connection notwithstanding prior maximum throttle closing movement of the corresponding throttle link serving to enable the other of said throttle links to be moved in the throttle closing direction by means of the corresponding pivotally movable adjusting element and the corresponding first actuating device.

3. A mechanism for adjusting the throttles of at least two engines to control power, which mechanism comprises in combination, two movable links connectible respectively with the throttles of the engines, two movable pivot members directly connected respectively with said links and movable therewith, two adjusting elements pivotally connected respectively with said pivot members and free from direct connection with said movable links, a movable first actuating device including an initial element and a member pivotally connected with said element and operatively engaging with both of said adjusting elements at positions remote from said pivotal axes, two selectively and independently movable second actuating devices respectively including initial elements and including members connected respectively with the last said elements and operatively engaging respectively with said adjusting elements at positions remote from said pivotal axes, said first actuating device when moved while the second actuating devices are stationary serving to pivotally move said adjusting elements in unison and to thus move said throttle links in unison so as to simultaneously move the throttles in the opening direction or vice versa and

each of said second actuating devices when selectively moved while the first actuating device is stationary serving to pivotally move the corresponding adjusting element independently of the other adjusting element and to thus move the corresponding throttle link so as to move the corresponding throttle in the closing direction or vice versa, and two yieldable connections interposed respectively between the said two throttle links and the initial element of one of said actuating devices, each of said yieldable connections notwithstanding prior maximum throttle closing movement of the corresponding throttle link serving to enable the other of said throttle links to be moved in the throttle closing direction by means of the corresponding pivotally movable adjusting element and the corresponding first actuating device.

4. A mechanism as set forth in claim 3, wherein said yieldable connections are interposed respectively between said two pivotally movable adjusting elements and the initial elements of said second actuating devices.

5. A mechanism as set forth in claim 4, wherein each said yieldable connection includes normally engaged elements enabling one of said second actuating devices to positively move the corresponding link in the throttle opening direction, and wherein each said yieldable connection further includes a spring tending to hold the last said elements in engagement but yieldable to enable one element to be separated from the other when the corresponding link has been moved to the maximum extent in the throttle closing direction and when said first actuating element is then moved in the throttle closing direction.

6. A mechanism for adjusting the throttles of at least two engines to control power, which mechanism comprises in combination, two movable links connectible respectively with the throttles of the engines, two movable pivot members directly connected respectively with said links and movable therewith, two first gears rotatably movable on said pivot members, and free from direct connection with said movable links, a movable first actuating device including an initial element and also including connected gears meshing respectively with both of said first gears and two selectively and independently movable second actuating devices respectively including initial elements and respectively including second gears meshing with said first gears at positions opposite the meshing positions of said connected gears with said first gears, said first actuating device when moved while the second actuating devices are stationary serving to rotate said first gears in unison and to roll them along said second gears and to thus move said throttle links in unison so as to simultaneously move the throttles in the opening direction or vice versa and each of said second actuating devices when selectively moved while the first actuating device is stationary serving to rotate the corresponding first gear independently of the other first gear and to roll it along the gear of the corresponding first actuating device and to thus move the corresponding throttle link so as to move the corresponding throttle in the closing direction or vice versa.

7. A mechanism for adjusting the throttles of at least two engines to control power, which mechanism comprises in combination, two movable links connectible respectively with the throttles of the engines, two movable pivot members directly connected respectively with said links and movable therewith, two first gears rotatably movable on said pivot members and free from direct connection with said movable links, a movable first actuating device including an initial element and also including connected gears meshing respectively with both of said first gears, two selectively and independently movable second actuating devices respectively including initial elements and respectively including second gears meshing with said first gears at positions opposite the meshing positions of said connected gears with said first gears, said first actuating device when moved while the second actuating devices are stationary serving to rotate said first gears in unison and to roll them along said second gears and to thus move said throttle links in unison so as to simultaneously move the throttles in the opening direction or vice versa and each of said second actuating devices when selectively moved while the first actuating device is stationary serving to rotate the corresponding first gear independently of the other first gear and to roll it along the gear of the corresponding first actuating device and to thus move the corresponding throttle link so as to move the corresponding throttle in the closing direction or vice versa, and a yieldable connection interposed between one of said throttle links and the initial element of one of said actuating devices, said yieldable connection notwithstanding prior maximum throttle closing movement of the corresponding throttle link serving to enable the other of said throttle links to be moved in the throttle closing direction by means of the corresponding first gear and the corresponding first actuating device.

8. A mechanism as set forth in claim 7, wherein there are two yieldable connections interposed respectively between the two throttle links and the initial elements of said second actuating devices, each of said yieldable connections notwithstanding prior maximum closing movement of the corresponding throttle link serving to enable the other of said throttle links to be moved in the throttle closing direction by the corresponding first gear and of said first actuating device.

9. A mechanism as set forth in claim 8, wherein each yieldable connection includes normally engaged elements rigidly connected respectively with the initial element of the gear of the corresponding second actuating mechanism and further includes a spring tending to hold said elements in engagement but permitting separation thereof.

10. A mechanism for adjusting the throttles of at least two engines to control power, which mechanism comprises in combination, two movable links connectible respectively with the throttles of the engines, two movable pivot members pivotally movable about a common transverse axis and directly connected respectively with said links and movable therewith, two first bevel bears pivotally movable on said pivot members and free from direct connection with said movable links, a movable first actuating device including an initial element and also including connected bevel gears rotatable about said transverse axis and meshing respectively with both of said first bevel gears, and two selectively and independently movable second actuating devices respectively including initial elements and including second bevel gears rotatable about said transverse axis and meshing respectively with said first bevel gears at positions opposite the meshing positions of said connected bevel gears with said first bevel gears, said first actuating device when moved while the second actuating devices are stationary serving to rotate said first bevel gears in unison and to roll them along said second bevel gears and to thus move said throttle links in unison so as to simultaneously move the throttles in the opening direction or vice versa and each of said second actuating devices when selectively moved while the first actuating device is stationary serving to rotate the corresponding first bevel gear independently of the other first bevel gear and to roll it along the bevel gear of the corresponding first actuating device and to thus move the corresponding throttle link so as to move the corresponding throttle in the closing direction or vice versa.

11. A mechanism for adjusting the throttles of at least two engines to control power, which mechanism comprises in combination, two movable links connectible respectively with the throttles of the engines, two movable pivot members pivotally movable about a common transverse axis and directly connected respectively with said links and movable therewith, two first bevel gears pivotally movable on said pivot members and free from direct connection with said movable links, a movable

first actuating device including an initial element and also including connected bevel gears rotatable about said transverse axis and meshing respectively with both of said first bevel gears, two selectively and independently movable second actuating devices respectively including initial elements and including second bevel gears rotatable about said transverse axis and meshing respectively with said first bevel gears at positions opposite the meshing positions of said connected bevel gears with said first bevel gears, said first actuating device when moved while the second actuating devices are stationary serving to rotate said first bevel gears in unison and to roll them along said second bevel gears and to thus move said throttle links in unison so as to simultaneously move the throttles in the opening direction or vice versa and each of said second actuating devices when selectively moved while the first actuating device is stationary serving to rotate the corresponding first bevel gear independently of the other first bevel gear and to roll it along the bevel gear of the corresponding first actuating device and to thus move the corresponding throttle link so as to move the corresponding throttle in the closing direction or vice versa, and two yieldable connections interposed respectively between the two throttle links and the initial

elements of the two second actuating devices, each of said yieldable connections notwithstanding prior maximum throttle closing movement of the corresponding throttle link serving to enable the other of said throttle links to be moved in the throttle closing direction by means of the corresponding first bevel gear and the corresponding first actuating device.

12. A mechanism as set forth in claim 11, wherein each yieldable connection includes normally engaged elements rigidly connected respectively with the initial element of the bevel gear of the corresponding second actuating mechanism and further includes a spring tending to hold said elements in engagement but permitting separation thereof.

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