

J. F. LOCKWOOD.
 DEVICE FOR OPERATING AWNINGS.
 APPLICATION FILED JULY 7, 1909.

953,386.

Patented Mar. 29, 1910.

4-SHEETS-SHEET 1.

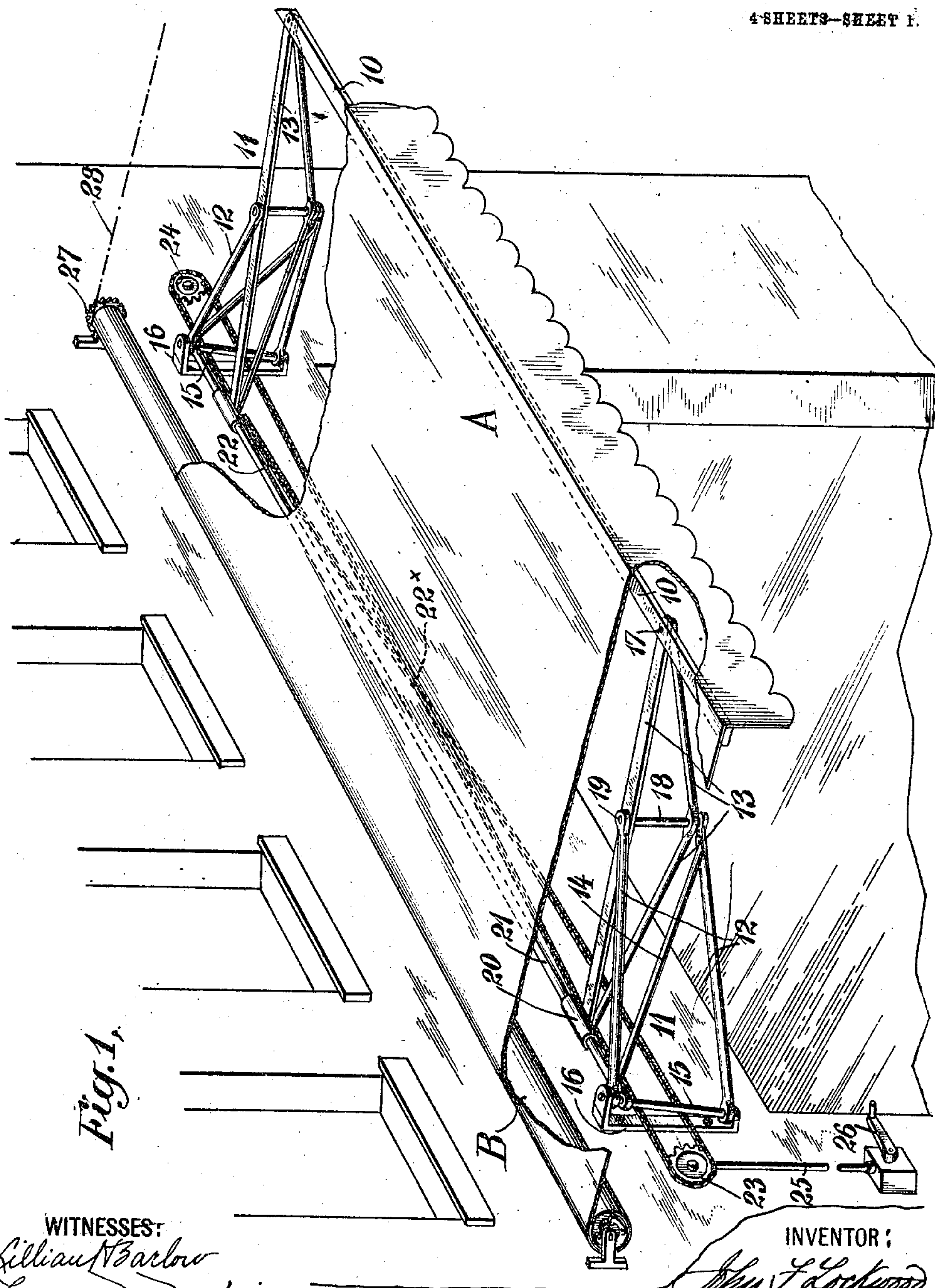


Fig. 1.

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 Laura B. Penfield

INVENTOR:

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4 SHEETS—SHEET 2.

Fig. 2,

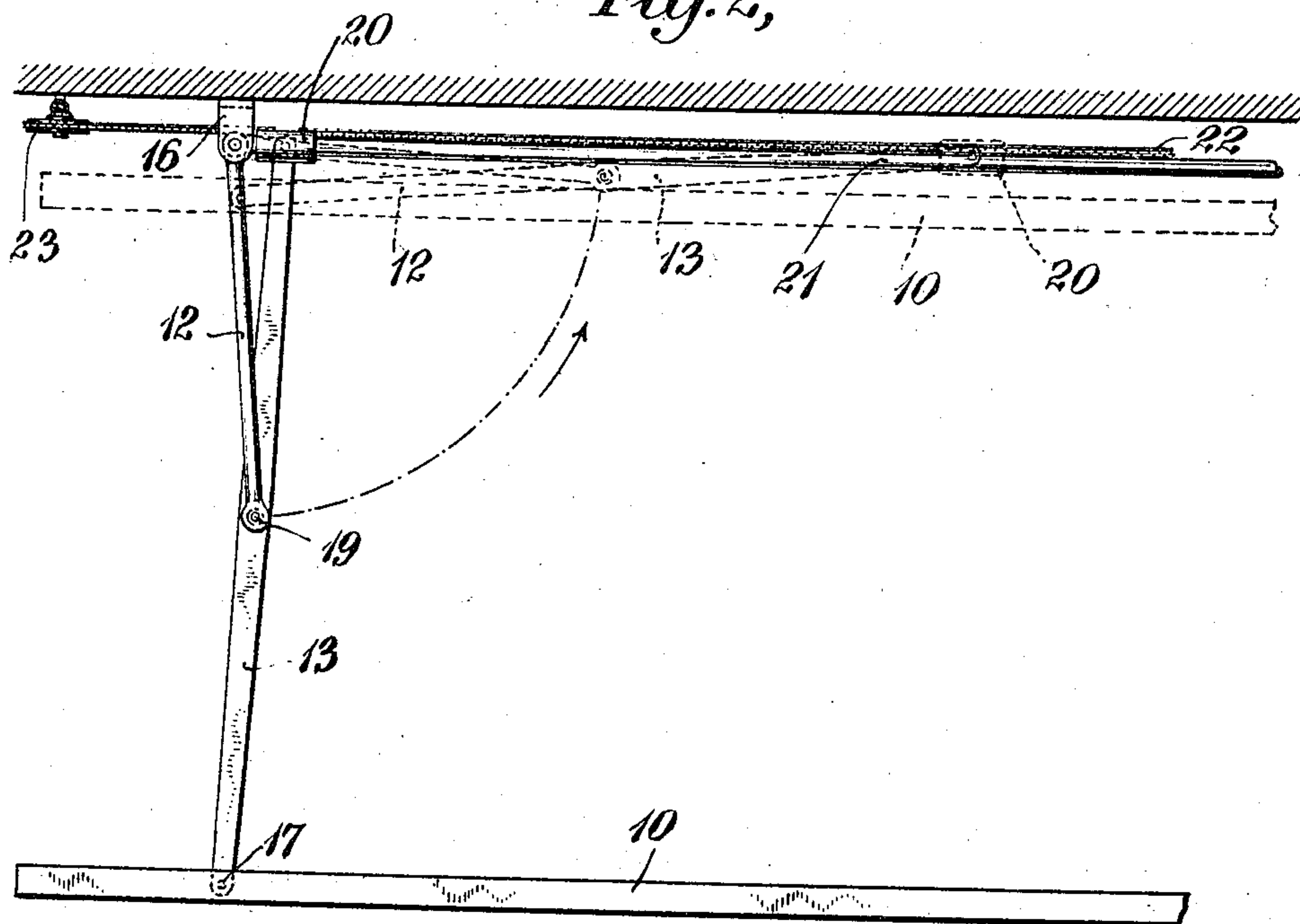
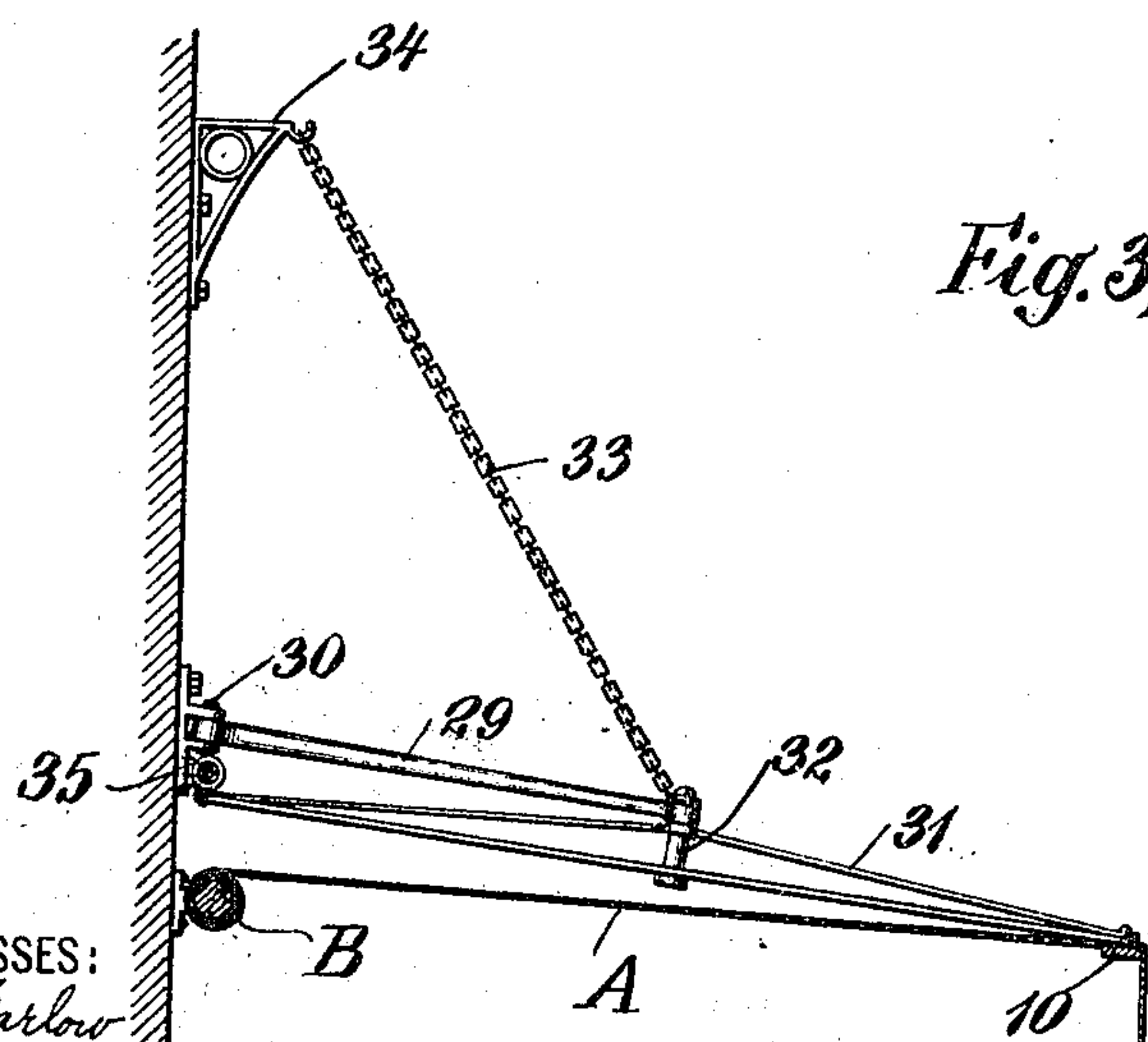


Fig. 3,



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4 SHEETS—SHEET 3.

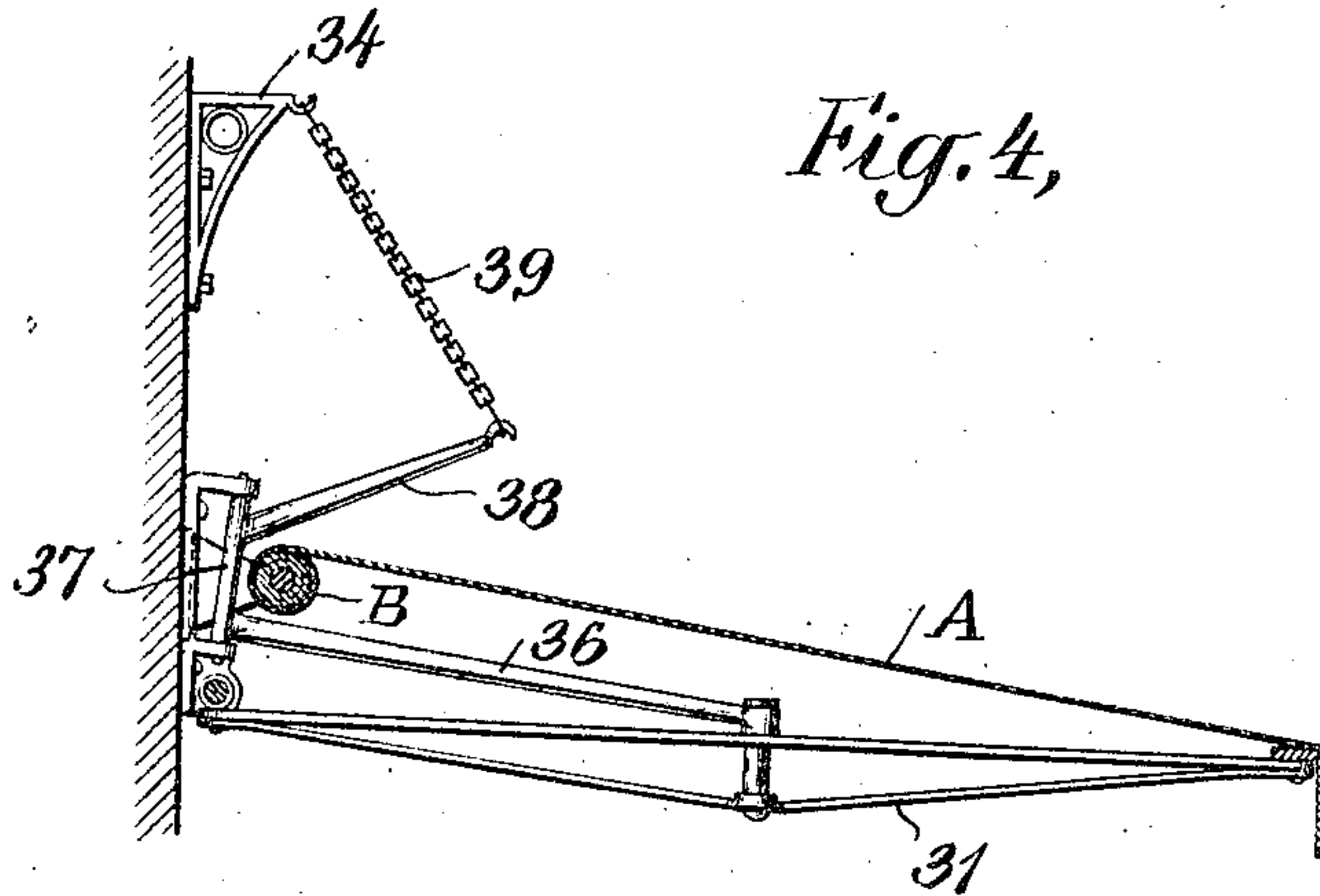


Fig. 4,

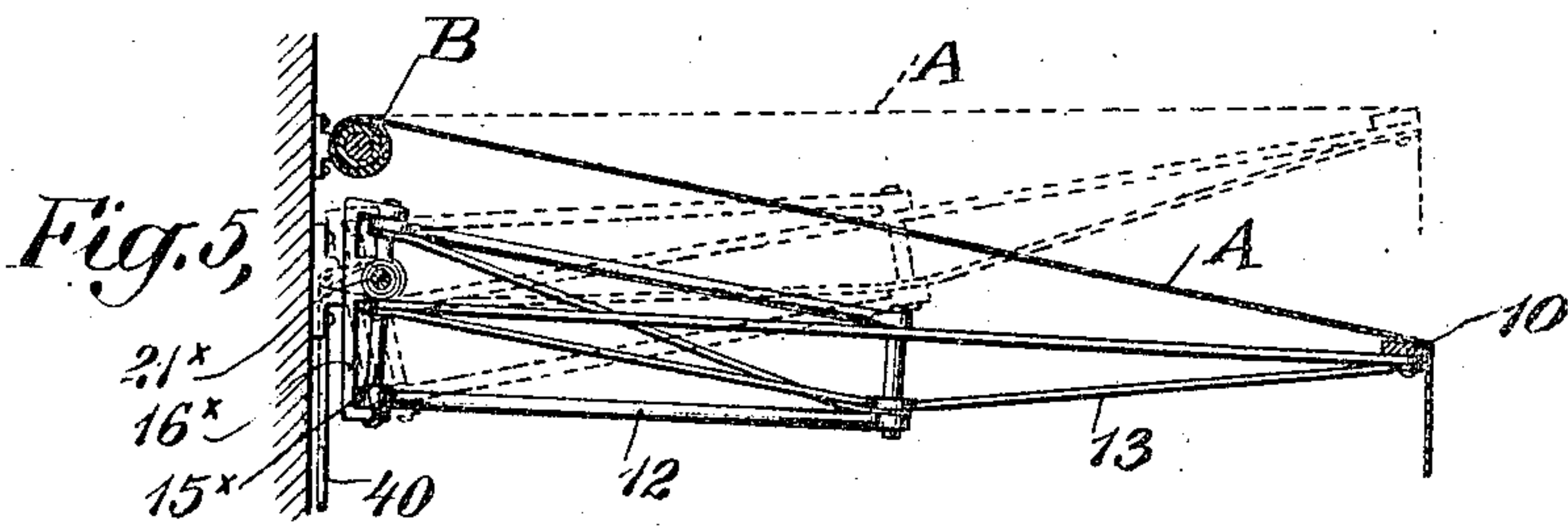


Fig. 5,

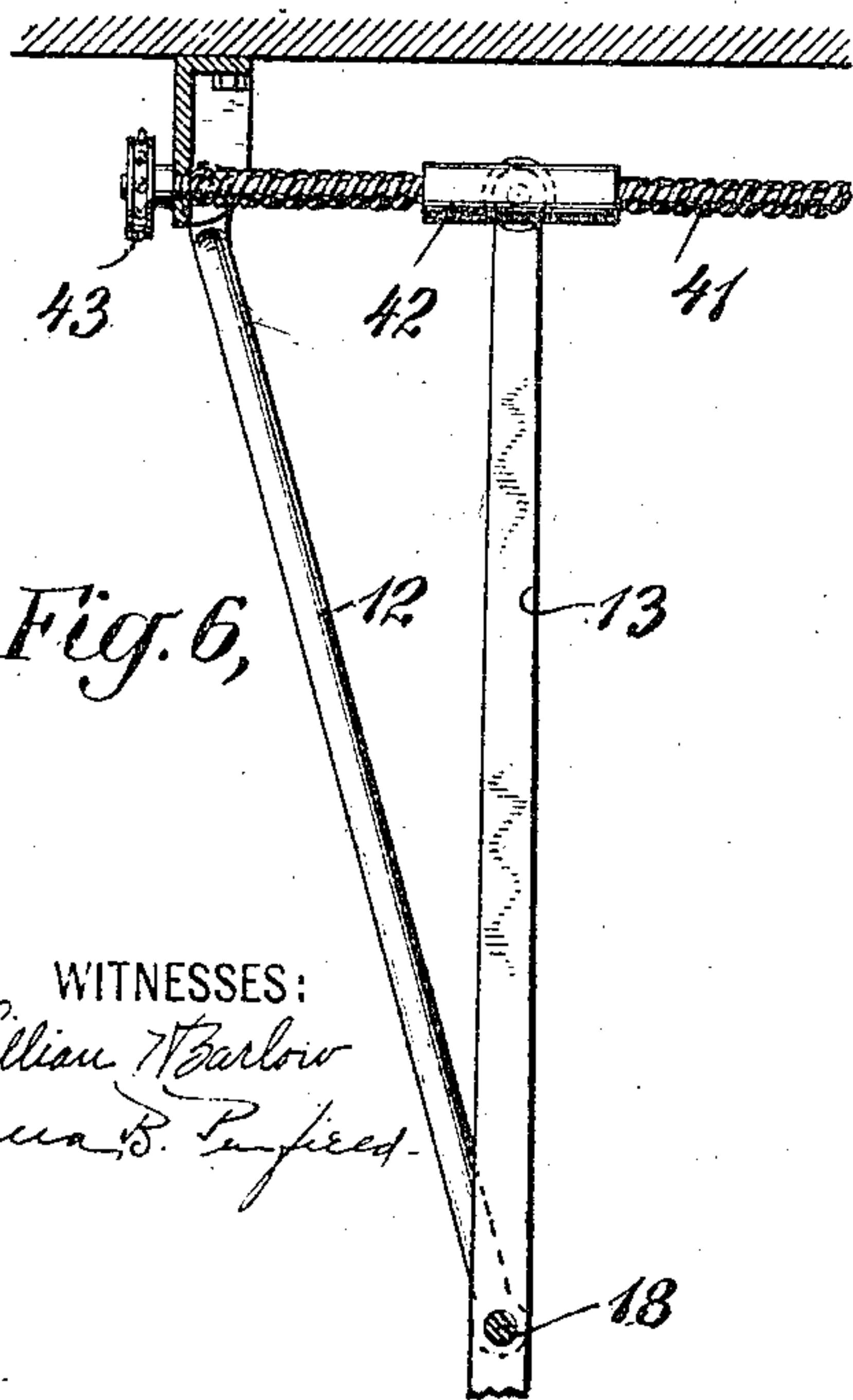


Fig. 6,

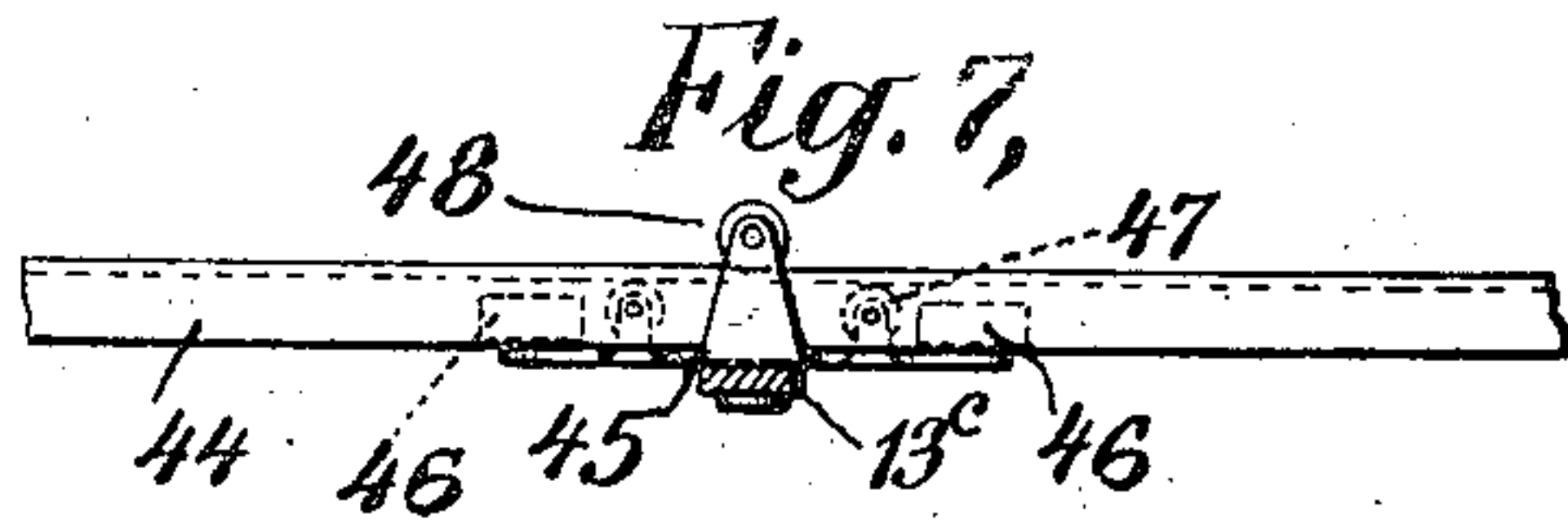


Fig. 7,

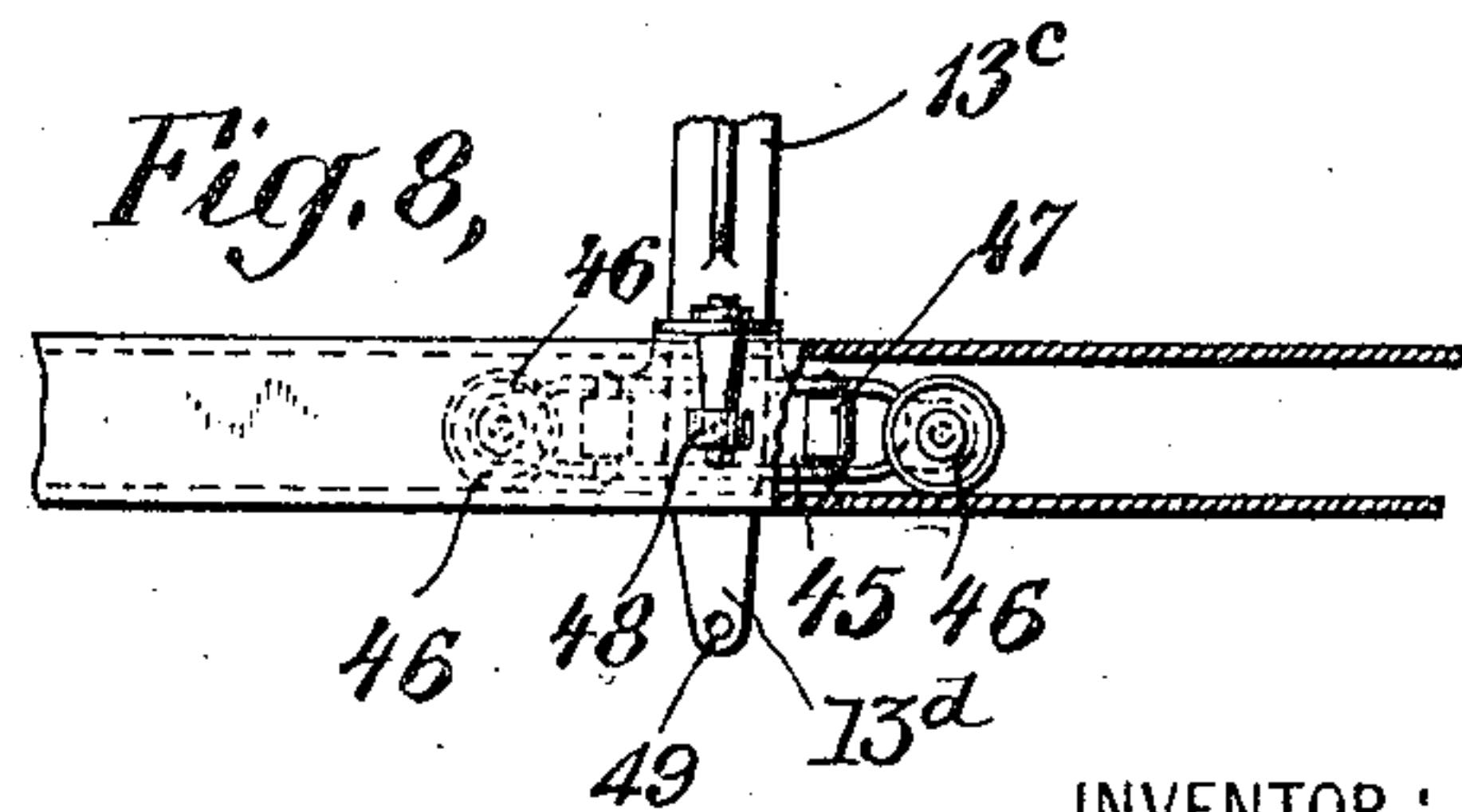


Fig. 8,

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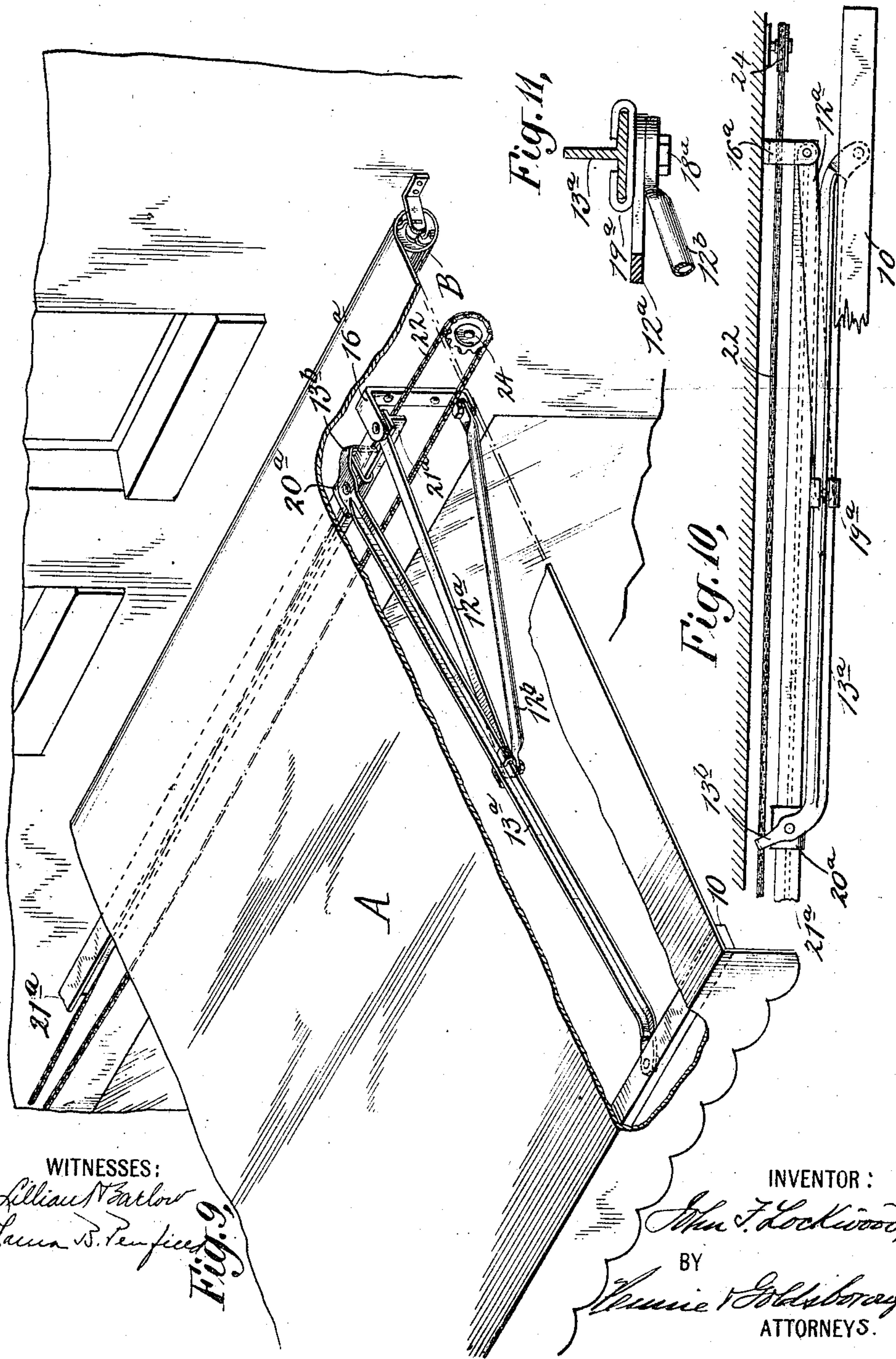
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4 SHEETS—SHEET 4.



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Fig. 9

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UNITED STATES PATENT OFFICE.

JOHN F. LOCKWOOD, OF KANSAS CITY, MISSOURI.

DEVICE FOR OPERATING AWNINGS.

953,386.

Specification of Letters Patent.

Patented Mar. 29, 1910.

Application filed July 7, 1909. Serial No. 506,339.

To all whom it may concern:

Be it known that I, JOHN F. LOCKWOOD, a citizen of the United States, residing in Kansas City, county of Jackson, and State of Missouri, have invented certain new and useful Improvements in Devices for Operating Awnings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to awning fixtures, and more especially to fixtures used in connection with flat awnings of the type employed on store fronts, projecting from the building over the sidewalk.

The object of the invention is to furnish a readily operated and reliable device for projecting, sustaining and retracting awnings of this description. The awning itself may vary in character and the device may be used in conjunction with any awning having a lateral movement toward and away from the building.

The invention also aims to provide a fixture embodying means connected with the awning at the front edge thereof, which means has a substantially horizontal movement toward and away from the building, there being means located adjacent the wall of the building to take up the slack of the awning automatically as it is advanced and withdrawn. The awning moving means is capable of easy operation, and when the awning is retracted, the entire device is folded compactly against the wall.

The invention consists in attaching to the outer or front edge of the awning proper a longitudinally extending bar which has a parallel movement with respect to the building wall, said bar being moved horizontally toward and away from said wall by means of suitable lever mechanism, and the rear portion of the awning being unrolled or taken up by means of a suitable roller on which the awning is wound. The lever mechanism referred to is actuated by means of positively driven slides movable in close proximity to the wall of the building and operated in an improved manner. Provision is made for supporting the lever mechanism and the awning bar and awning strongly from the wall, and it is also possible to move the lever mechanism in a vertical plane about a suitable pivot, so that the

awning may be raised or lowered, as will appear from the following description.

In the accompanying drawings, Figure 1 is a perspective view of an awning fixture constructed in accordance with the invention, the awning being broken away to show the sustaining mechanism therefor, Fig. 2 is a diagrammatic plan view showing how the awning is projected and retracted. Fig. 3 is a vertical transverse section through a modification of the device, in which the lever mechanism is located above the awning proper, Fig. 4 is a similar view showing a further modification, Fig. 5 illustrates a modification in which provision is made for tilting the awning in a vertical plane, Fig. 6 is a detail view of a modified form of the device for operating the lever mechanism, Figs. 7 and 8 illustrate a further modification in which one of the levers is guided in a channel iron and Figs. 9, 10 and 11 illustrate a further and even simpler form.

In the drawings, the awning proper A is illustrated as applied to a store front and adapted to be projected over the sidewalk, but it must be stated here that the fixture is capable of many other applications. The awning is also shown as being substantially flat, viz., of slight inclination and adapted to be wound up on a spring roller B attached to the building; but these features are also capable of modification.

According to this invention, a bar 10 is applied to the front or outer edge of the awnings, preferably at its under surface, and suitable lever mechanism is employed to project said bar from the wall of the building in order to open the awning and to withdraw the bar toward the building in order that the awning may be folded against the building wall, it being preferably wound on the spring roller B.

In the construction shown in Fig. 1, the lever mechanism 11 is located just beneath the awning and comprises interconnected levers 12, 13 placed at suitable points in the length of the awning, the number of sets of these levers employed being determined by the length of the awning and the power which is necessary to project and retract the same. The lever 12 is formed in the shape of a bracket embodying upper and lower rods braced by a diagonal brace 14, and said lever is hinged or pivoted, for laterally swinging substantially horizontal

movement, by means of a pintle 15, the ends of which are secured in a U-shaped keeper 16 applied to the building wall. The lever 13, which is connected at its outer end with the awning bar 10, as shown at 17, is pivoted intermediate of its ends to the outer end of the bracket lever 12. Said lever 13 is preferably of truss-like character, as illustrated, it being formed of upper tension member, lower compression member and an intermediate tension member or rod 18 to the ends of which the upper and lower rods of the bracket lever 12 are connected as shown at 19, in order to form the pivotal connection just mentioned. The levers are operated by a positively driven slide 20 secured to the inner end of the trussed lever 13 and guided horizontally in close proximity to the building wall through the intermediacy of a guide rod. This guide rod (which may, as hereinafter indicated, be either round, T-shaped or channel-shaped in cross section) is substantially parallel to the awning bar 10, and, in the form shown in Fig. 1, it is placed immediately below the spring roller B, the ends of said rod being connected to the pintles 15 of the two bracket levers illustrated in this embodiment of the invention. Each slide 20 is connected to an endless chain 22 driven by a driving sprocket 23, and running on an idle sprocket 24 at the opposite end of the awning. The runs of the chain 22 are crossed at 22* in order that the slides shall be driven in opposite directions. The driving sprocket 23 may be operated manually by transmitting mechanism of any suitable kind, (such as rod and gear or chain and sprocket) put into operation by the rotation of a hand crank 26. I have chosen for illustration the rod 25 of a rod and gear mechanism.

Fig. 1 illustrates the awning in the act of being projected over the sidewalk, the projecting mechanism not having yet reached its final position, which is shown in Fig. 2. If it is desired to withdraw the awning, from its projected position and fold its projecting mechanism against the building wall, the hand crank 26 is operated in the proper direction to cause the chain to move the slides 20 away from the pivots of the bracket levers 12, whereby the angle between each trussed lever and each bracket lever will be decreased until the parts reach the folded position shown in dotted lines in Fig. 2, wherein the awning bar 10 is retracted into close proximity to the wall. It will be noted that this movement of the levers, caused by the movement of the slide, effects the easy and quick withdrawal of the awning bar while maintaining its parallelism with the wall, there being no longitudinal movement of the awning bar, as the points which move longitudinally are at the free end of the

trussed lever and at the junction of the levers. The slack is, of course, taken up by the spring roller B in exact correspondence with the rearward movement of the awning bar 10. When the awning is to be projected again, it is merely necessary to turn the hand crank 26 in the opposite direction, whereby the slides 20 are moved away from each other and toward the pintles 15, thus causing the outer ends of the levers 13, and the awning bar 10, to be moved away from the building. If desired, the awning roll B may be operated by means of a gear 27 at one end thereof, said gear being operated by a chain indicated by the dot and dash line 28, shown in Fig. 1.

Fig. 3 illustrates a modification of the device, in which the lever mechanism is located above the awning. In this form of the apparatus, the bracket lever is replaced by a lever 29 formed of a single bar. Said lever is pivoted to a pintle 30 (supported from a wall bracket) and to the intermediate portion of the trussed lever 31. In order to support the structure strongly from the wall the member or rod 32 of the trussed lever, to which rod the lever 29 is pivoted, is connected at its upper end to a chain 33, which is hooked over a bracket 34 applied to the wall of the building above the lever mechanism. The lever mechanism is operated by a slide of the character previously described, and such slide is guided on a guide rod 35.

When it is desired to sustain the awning fixture from above and at the same time locate the lever mechanism below the awning, the arrangement shown in Fig. 4 may be adopted. In this form of the device, the trussed lever 31, which may be termed the primary or operating lever, is located beneath the awning and actuated in the usual manner. Pivoted to said primary lever, is a lever 36 connected at its opposite end with a pintle 37, from which projects an arm 38. The arm 38, the pintle 37, and the lever 36 are preferably formed integral so that, in effect, a double lever is obtained, the arm 38 of which projects above the awning. Connected with the outer end of the arm 38 is a chain 39 suspended from a bracket 34 such as previously described. In this way, the entire awning structure is effectively sustained.

In the form of the device shown in Fig. 5, the construction is substantially the same as that shown in Fig. 1, but provision is made for tilting the structure upward in order to raise the awning to a certain extent. This is effected by pivoting the bracket lever 12 on the guide rod 21*, the pintle 15* and bracket or keeper 16* being capable of oscillation about said guide rod, so that the parts may be raised into the position indicated in dotted lines. The pivotal movement of the lever mechanism may be produced by means

of a suitable hand operated rod 40 of a similar device.

In the modification shown in Fig. 6, the guide rod is replaced by a threaded spindle 41, and the slide has substituted therefor a nut 42 threaded on said spindle and secured to the inner end of the primary lever. The spindle can be rotated in any suitable way, as by a chain passing over the sprocket 43 on said spindle. In case the nuts 42 used in an awning fixture travel in opposite directions, the portions of the threaded spindle which they engage will, of course, be oppositely threaded; or, instead of connecting the nut 42 to the lever 13, said nut could be connected to one of the inner runs of a crossed chain. In that case, the chain would be supported at each end by an idle sprocket and the slides would be mounted upon a slide rod, and connected respectively with the inner runs of the crossed chain; so that, the movement of the nut would actuate the chain and the slides would be moved simultaneously toward or from each other.

In the modification shown in Figs. 7 and 8, the slide rod is replaced by a channel iron 44 in which travels a carriage 45 to which the end of the primary lever 13 is attached. The carriage is provided with rollers 46 traveling in the channel iron, rollers 47 at right angles thereto also traveling in the channel iron, and a roller 48 traveling on the outer face of the channel iron. By this arrangement the carriage 45 is efficiently guided in its longitudinal movement, and the movement of the lever 13 takes place with a minimum of friction. The lever 13 in this instance, is provided with a strengthening rib, and, at its extreme inner end 13^a has an aperture 49 for the insertion of a pin or the like connecting it to the chain drive.

In the form of the invention illustrated in Figs. 9, 10 and 11, I have considerably simplified and strengthened the construction by making the projecting mechanism of a lesser number of parts, and by introducing certain minor modifications in the details of the general structure. Thus, in the construction shown in these Figs. 9, 10, and 11, the number of pieces constituting each projecting lever consists of but three main parts, to wit, an upper tension member 12^a, which may be of strap iron, a lower compression member 12^b (which is preferably of gas pipe flattened at the ends) and a T-iron 13^a. The manner in which the members 12^a and 12^b are pivotally connected to the member 13^a is shown in the detail view Fig. 11 which illustrates the clip connection 19^a held in place by the headed screw 18^a upon which the outer ends of the members 12^a and 12^b have freedom of pivotal action. So, also, the bracket 16^a affords a pivotal support for the inner ends of these members 12^a, and 12^b, as shown and likewise supports the

guide rod 21^a, which, in this instance, is preferably a T-iron, carrying a slide 20^a, giving a relatively wide sliding contact. The bar 13^a is bent or curved at its ends so as to give it an S-shape and the web of the T-iron is cut away at these ends so as to permit them to be more readily pivoted to the bar 10 and to the slide 20^a respectively. Furthermore, the extreme inner end 13^b of the member 13^a is bent down and connected with the actuating chain 22. The way in which the parts fold when the mechanism is retracted toward the building is shown in Fig. 10, and requires no further description.

It is obvious that the fixture described has a number of features which are important in providing generally for the easy and effective operation of awnings, and that numerous changes may be made in the details of the device without digressing from my inventive idea. Furthermore, it is to be noted that while I have described the awning as being preferably projected horizontally from the face of the building, this projection need be only substantially or approximately horizontal, as the lever mechanism may act in some instances, in a plane which is not restricted to any particular degree of inclination.

What I claim is:—

1. The combination with the awning and the bar applied to the forward edge thereof, of a lever supported for laterally swinging movement, a second lever attached at one end to the awning bar and pivoted midway of its length to the free end of said first named lever, and means for applying pressure directly to that end of the second named lever which is opposite the connection with said bar.

2. The combination with the roller, and the awning, of a bar applied to the forward edge of the awning, the lever mechanism connected with said bar, and a slide for operating the levers, said slide being movable parallel to said bar.

3. The combination of an awning adapted to be projected from the front of a building, lever mechanism connected with the forward or front edge of the awning and operating in a substantially horizontal plane, a slide to operate said lever mechanism, and manually operated means to cause the travel of the slide in opposite directions.

4. The combination of an awning arranged to be projected outward from the face of a building, devices to so project the awning including levers arranged at different points in the length of the awning, a slide to operate each of said devices, and manually operated means to move said slides in opposite directions.

5. The combination of an awning arranged to be projected horizontally from the front of the building, a lever connected

at one end with the forward edge of the awning, a laterally swinging bracket lever supported on the wall of the building and pivoted to said first named lever, and means to apply directly to the latter a horizontally acting operating force.

6. The combination with an awning and a bar applied to the forward edge thereof, of a lever supported for lateral swinging movement, a second lever attached at one end to the awning bar and pivoted midway of its length to said first named lever, a slide connected with that end of the second lever which is opposite its connection with said bar, and manually operated mechanism for moving said slide.

7. The combination with an awning, of a lever mounted on the building to have a lateral swinging movement, a second lever secured at one end to the forward edge of the awning and pivoted intermediate of its ends to said first named lever, a slide connected with that end of the second lever which is opposite its connection with the awning, and means to move said slide positively in a right line and parallel to the building wall.

8. The combination with an awning, of a set of horizontally swinging levers mounted on the building and connected with the forward or front edge of the awning, a slide to operate the levers, movable in a right line lengthwise of the awning, and mechanical connections for moving the slide positively in either direction.

9. The combination of an awning arranged to be projected outward from the face of a building, mechanisms to so project the awning, including levers disposed at different points in the length of the awning, a rectilinearly movable member to operate each of said mechanisms, and manually operated mechanical connections to move said members simultaneously.

10. The combination of an awning arranged to be projected outward from the face of a building, mechanisms to so project

the awning, including levers disposed at different points in the length of the awning, a rectilinearly movable member to operate each of said mechanisms, and manually operated mechanical connections to move said members simultaneously in opposite directions.

11. The combination of an awning arranged to be projected outward from the face of a building, devices to so project the awning including levers movable in a substantially horizontal plane and arranged in sets at different points in the length of the awning, a member to operate each of said devices, said members being movable horizontally and rectilinearly adjacent the building wall, and mechanical connections to actuate said members simultaneously.

12. The combination of an awning arranged to be projected horizontally from the front face or wall of the building, a device for projecting the awning comprising levers operating in a substantially horizontal plane, and means to tilt said lever mechanism in order to elevate the awning.

13. An awning fixture including interconnected levers operating in substantially a horizontal plane to project the awning, and a pivotal support adjacent the building and about which said levers may be moved vertically.

14. The combination of an awning arranged to be projected horizontally from the front face or wall of a building, a device for projecting the awning comprising levers operating in a substantially horizontal plane, a horizontally directed pivot about which the levers are movable vertically, and means connected to said lever mechanism to adjust the same with respect to said pivot, whereby the elevation of the awning is regulated.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN F. LOCKWOOD.

Witnesses:

KATE STOLTZFUS,
BLANCHIE COLEMAN.