

No. 610,289.

Patented Sept. 6, 1898.

H. TESSEYMAN & J. KIRBY, JR.

CAR SEAT.

(Application filed Feb. 24, 1898.)

(No Model.)

2 Sheets—Sheet 1.

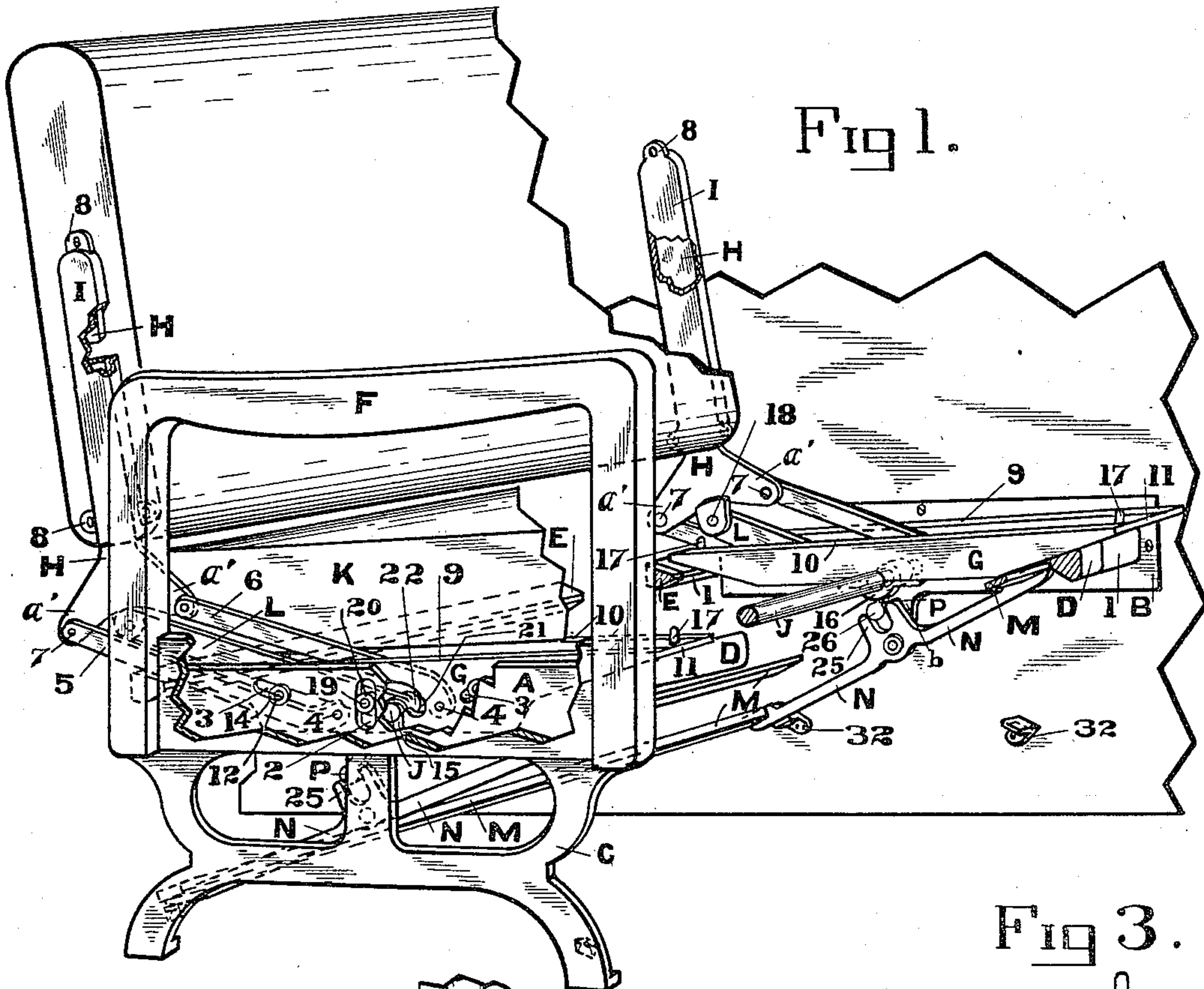


Fig 2.

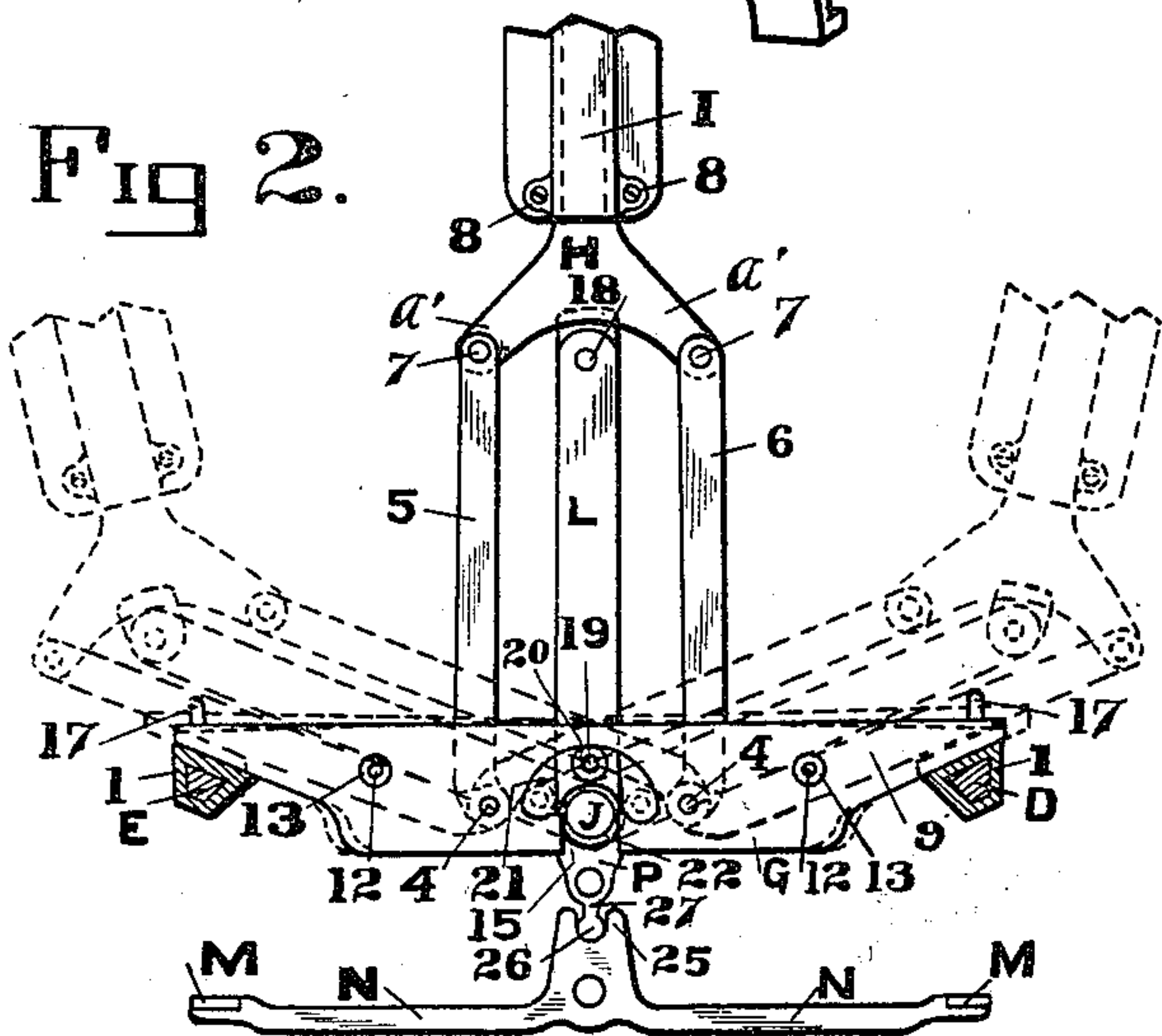
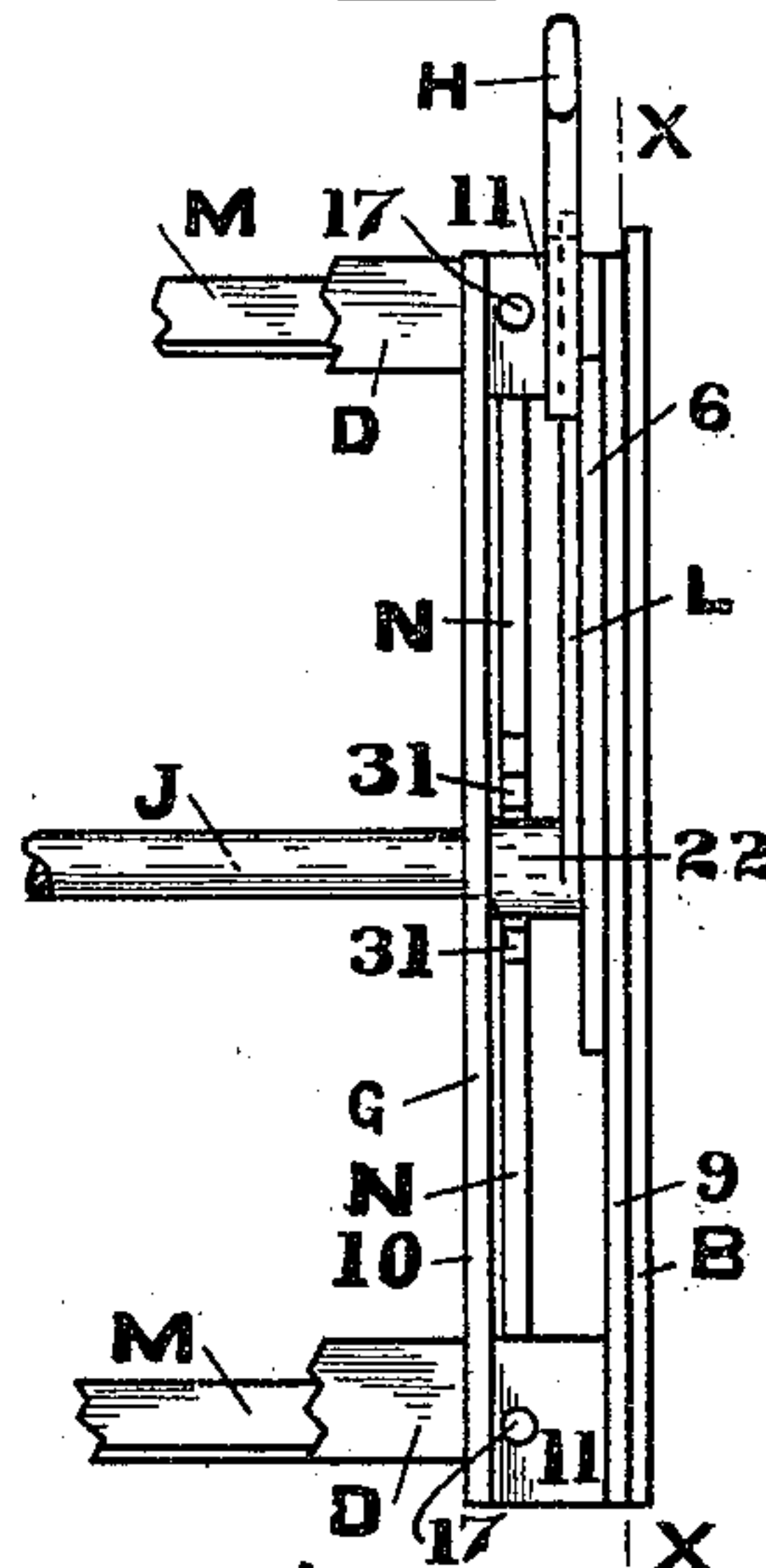


Fig 3.



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2 Sheets—Sheet 2.

Fig 4.

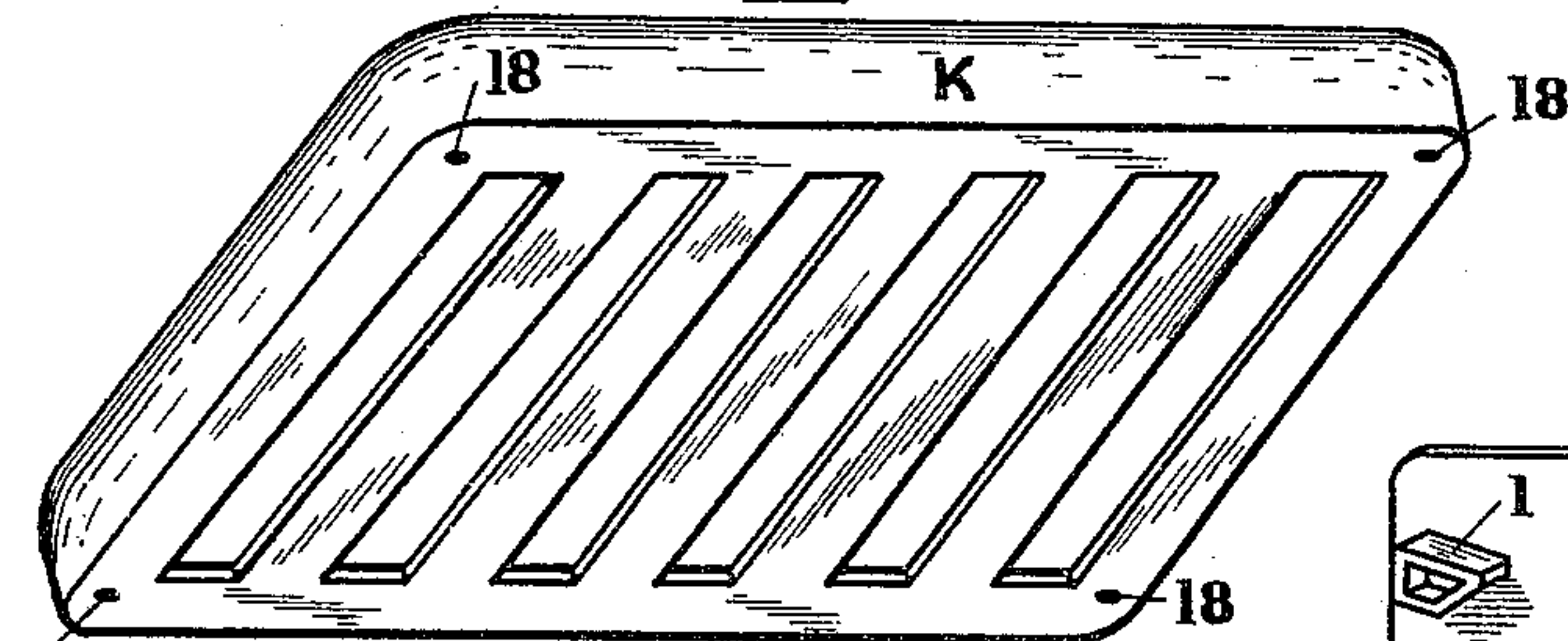


Fig 6.

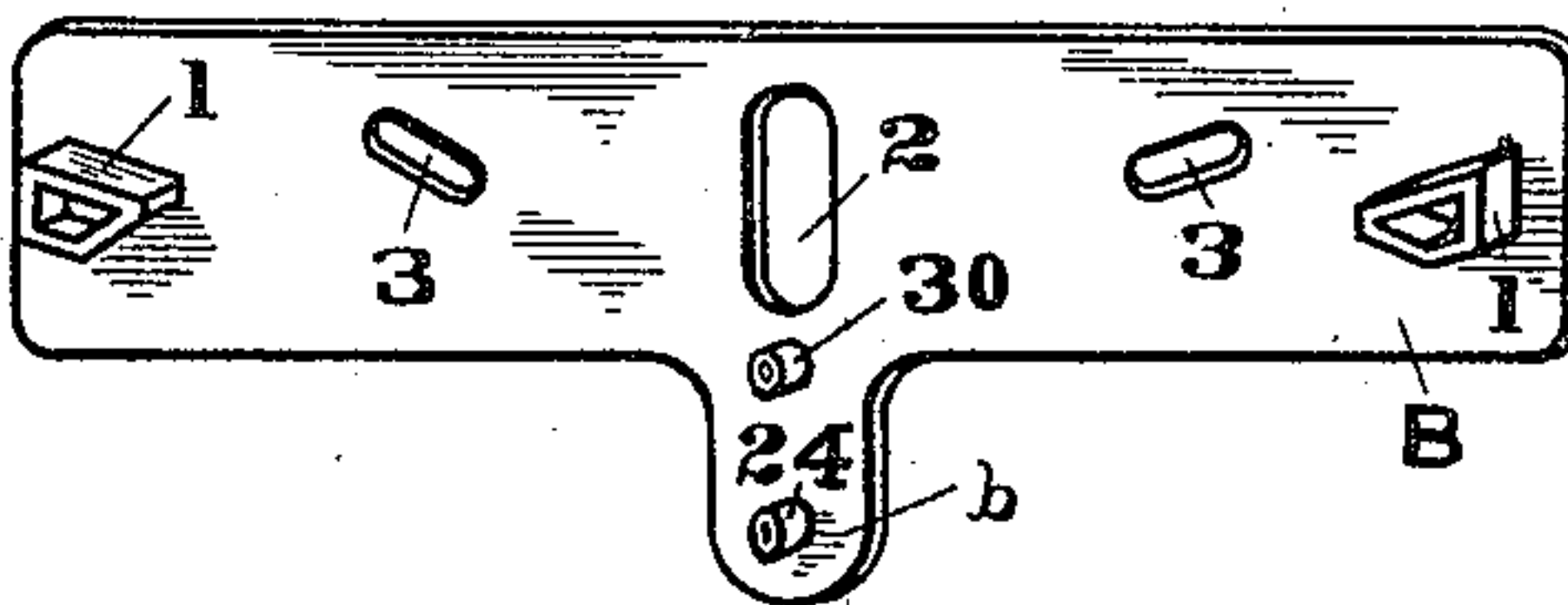


Fig 5.

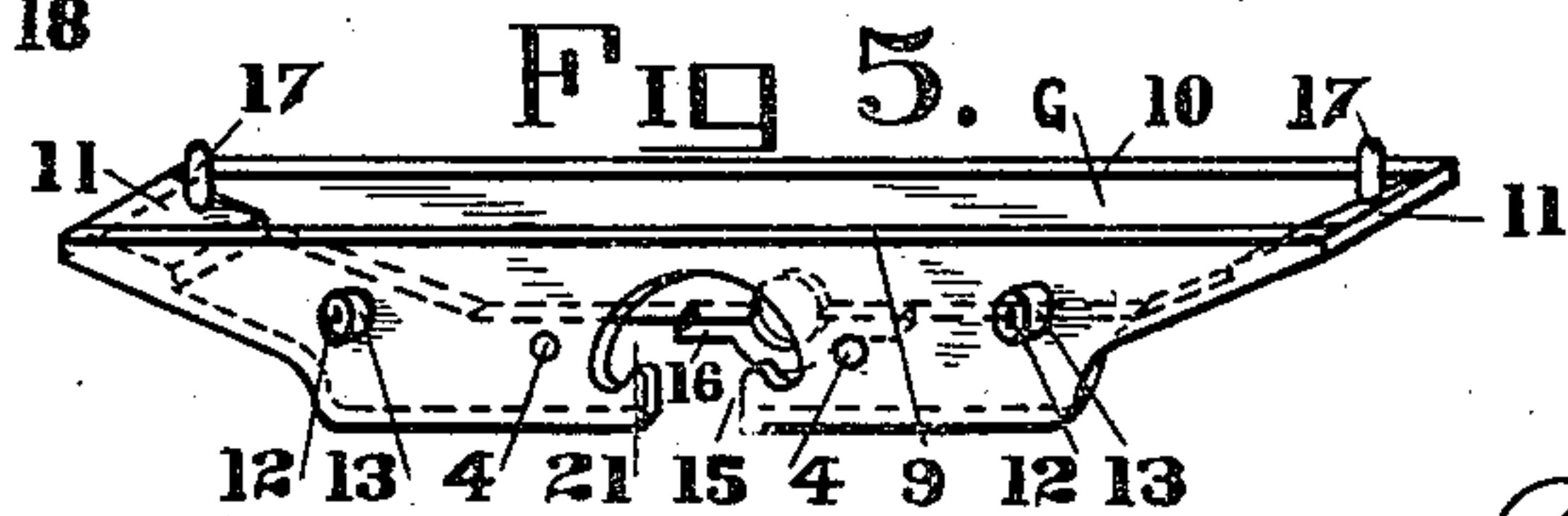


Fig 9.

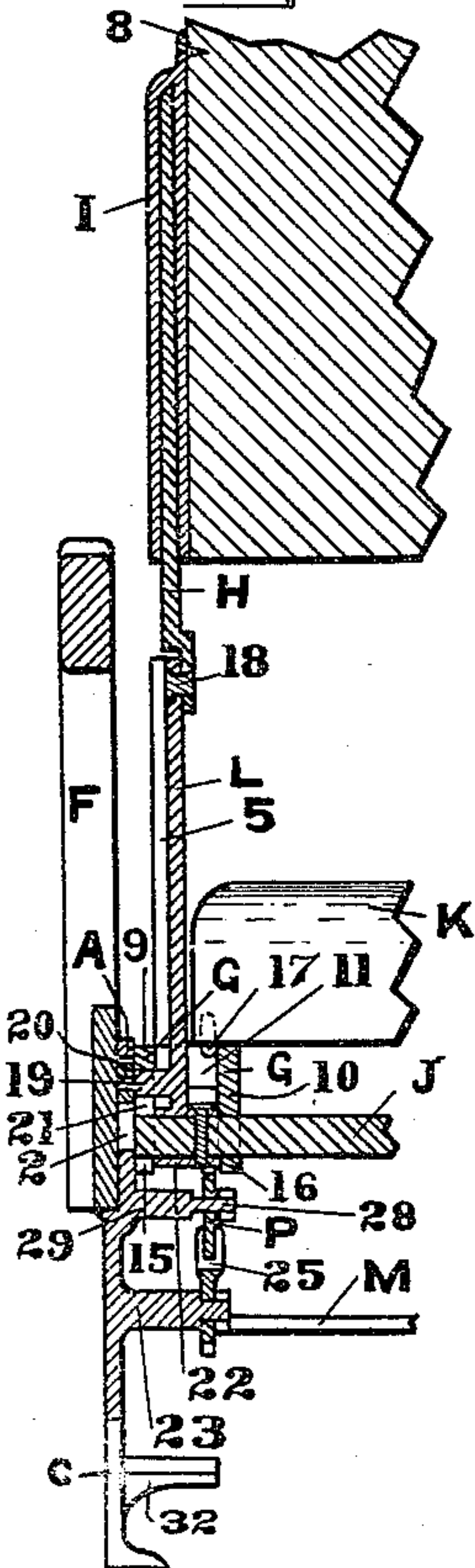


Fig 7.

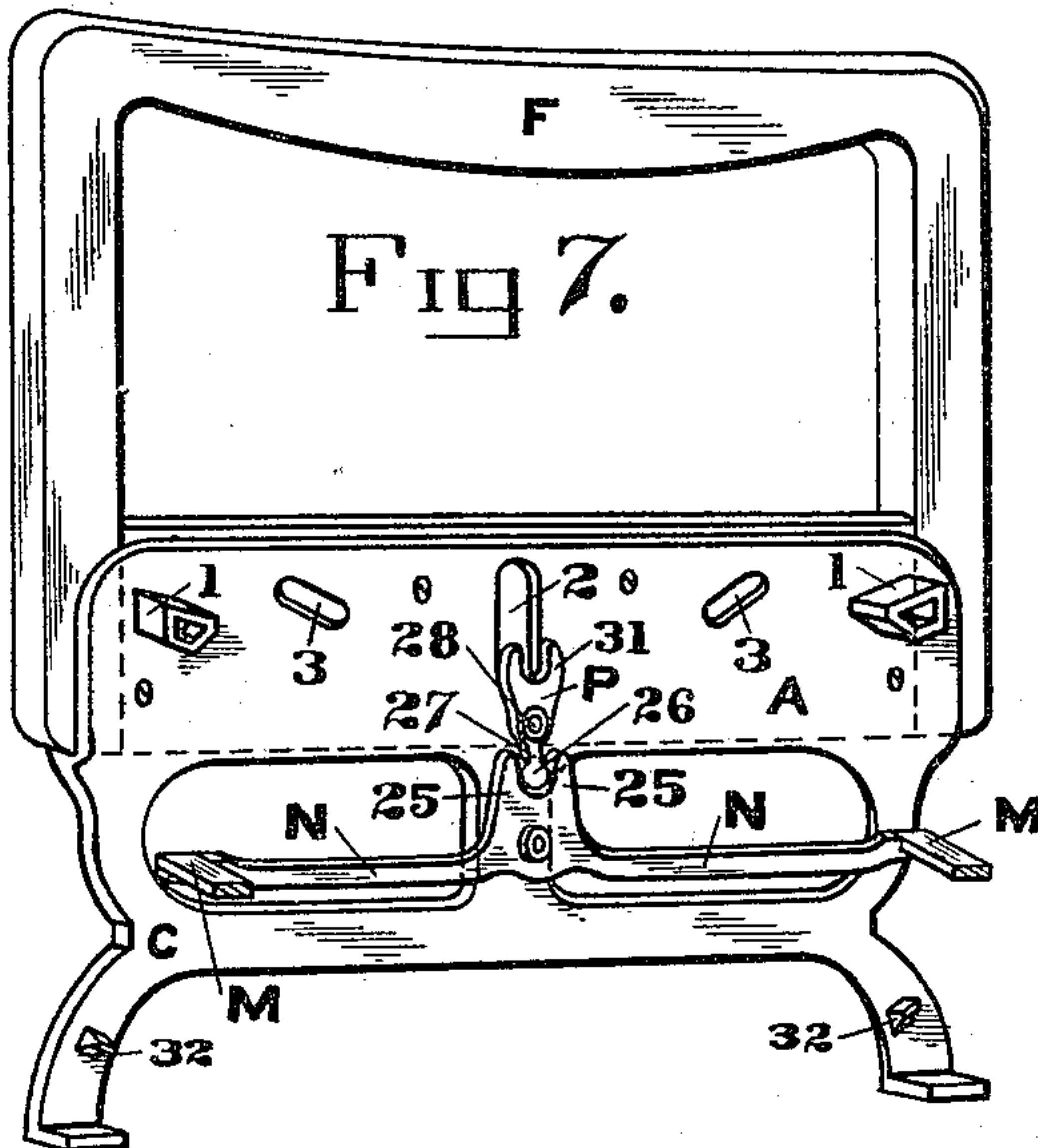
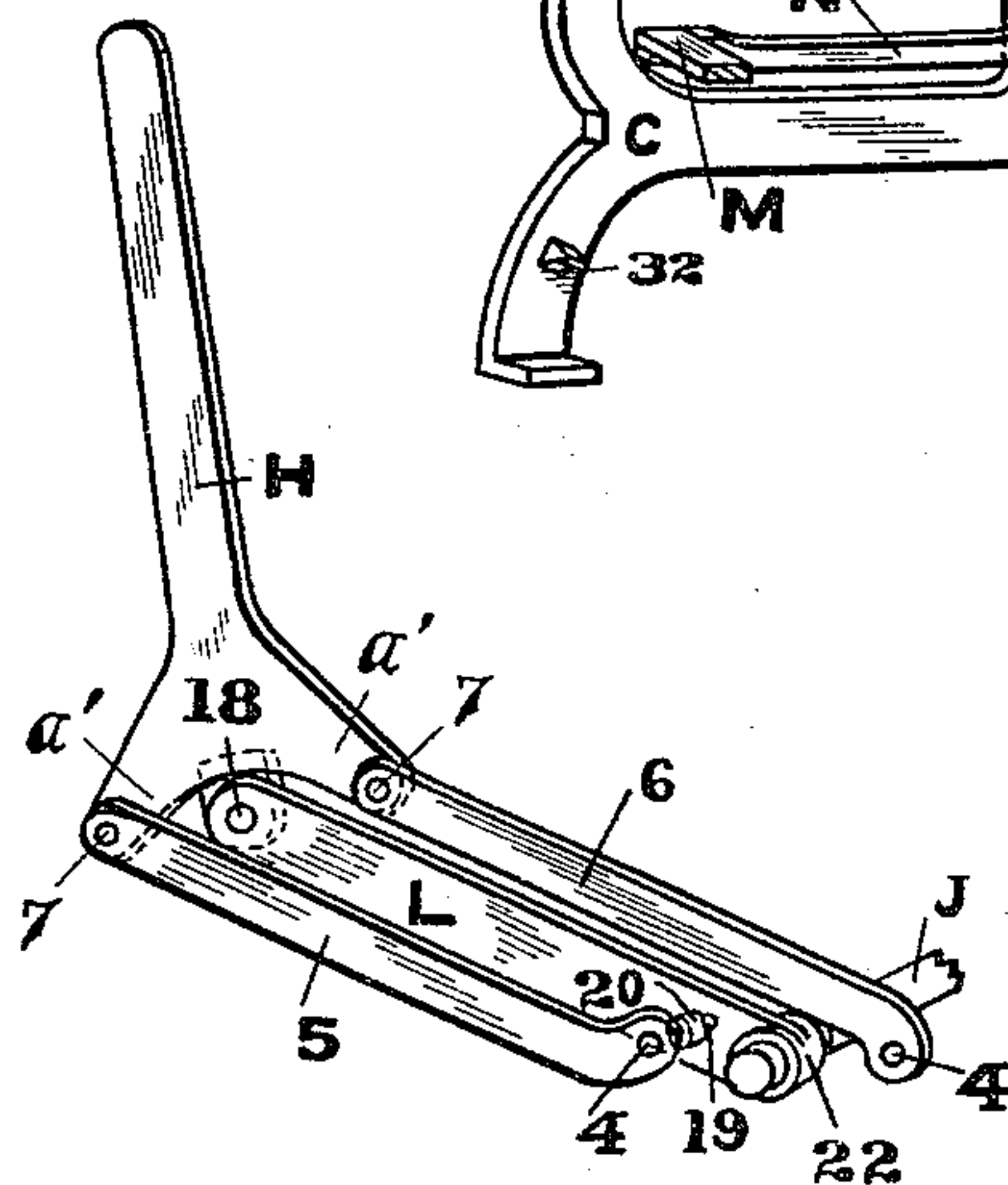


Fig 8.



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UNITED STATES PATENT OFFICE.

HENRY TESSEYMAN AND JOHN KIRBY, JR., OF DAYTON, OHIO; SAID
TESSEYMAN ASSIGNOR TO SAID KIRBY.

CAR-SEAT.

SPECIFICATION forming part of Letters Patent No. 610,289, dated September 6, 1898.

Application filed February 24, 1898. Serial No. 671,478. (No model.)

To all whom it may concern:

Be it known that we, HENRY TESSEYMAN and JOHN KIRBY, Jr., citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Car-Seats, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to car-seats of the class in which the back is reversible and in which the cushion is shifted back and forth by the movement of the back in reversing.

The principal objects of our invention are, first, to mount the back of the seat on arms pivoted at their lower ends to cushion-supports, preferably in the form of cushion-carrying rockers, adapted to carry the back independently of any direct connection with the seat-frame and to move in an opposite direction to the travel of the seat-back when being shifted; second, to obtain more clearance-room under the seat in order that the space may be utilized for the placing of satchels and other hand-baggage without interfering with the comfort of passengers; third, to provide improved means whereby the cushion will be shifted and tilted simultaneously with the reversing of the back; fourth, to provide improved mechanism for moving and tilting the cushion by shifting the seat-back, whereby the cushion can be made narrower than usual without reducing the seating-surface thereof; fifth, to provide such a seat with a pair of foot-rests which are operated by the movement of the back, so that when the latter is in either of its normal positions one of said rests will assume such position as to form a comfortable foot-rest for passengers occupying the adjacent rear seat and the other be supported in an elevated position behind the seat-rail, thus leaving an unobstructed space between the under side of the seat-rail and the floor at the front of the seat and which when the back is partially reversed will both be held in a semi-elevated position, thereby facilitating cleaning of the car-floor; sixth, to provide means whereby the back may be detachably connected with the mechanism by which the aforesaid objects are accomplished; seventh,

to simplify and reduce the number of parts heretofore employed to accomplish the results aforesaid, thereby lessening the cost of construction of the class of car-seats referred to and at the same time provide mechanism for shifting the seat-back and cushion-frame which in manipulation will impart a quiet and easy movement.

The details of construction and arrangement of parts by which these objects are accomplished are hereinafter more fully described, pointed out in the claims at the end of this specification, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a car-seat embodying our improvements and in which the seat end, the cushion, and other parts are broken away to show the construction of the operating mechanism. Fig. 2 is a vertical cross-section through the line *xx* of Fig. 3 with the cushion-frame removed, the back being shown in a semireversed position, the normal positions of the back being represented by dotted lines; Fig. 3, a broken plan view of the wall end plate and operating mechanism; Fig. 4, a perspective view of the bottom side of the cushion-frame; Fig. 5, a perspective view of one of the cushion-rockers as seen from the side facing the seat end; Fig. 6, an inside perspective view of the wall end plate; Fig. 7, a perspective view of the inside of the seat end adjacent to the aisle of the car, the same being detached from the seat and showing one of the foot-rest-supporting arms and its operating-lever attached to the seat end, the foot-rests being shown in a semi-elevated position; Fig. 8, a like view of one of the back-arms with connecting-levers attached thereto, but detached from the cushion-rocker; and Fig. 9, a vertical cross-section through the seat-frame and operating mechanism at the center thereof, with the back shown in a semi-elevated position.

Similar letters and numerals of reference indicate like parts in all the figures of the drawings.

The seat-frame is composed of two end plates A B, the plate A being preferably formed integral with a stand C, and these plates are united by rails D E, secured at their ends in sockets or extensions 1 on said plates.

The plate B is secured to the wall of the car, and the stand C is secured to the car-floor and forms the aisle end of the seat. A wood seat end F is screwed or otherwise fixed to the plate A and may be of any of the well-known forms, or it may be of metal and formed integral with the plate A and stand C. The wall end of the seat may, however, be of the same form as the aisle end, if desired. The plates A and B are each provided at the center thereof with a vertical slot 2 and two radial slots 3, located equidistant from the said vertical slot, the functions of which slots will presently appear. The socket 1 of the plates A and B and the rails D E are arranged with their upper surfaces inclined downwardly toward the center of the seat-frame, and the said sockets carry at each end of the seat a cushion-rocker G, having inclined surfaces to correspond with those of the said rails upon which the rockers ride, and to these rockers is pivoted at 4 the lower ends of a pair of substantially parallel lever-arms 5 6 about equal in length, the upper ends of these arms being pivoted at 7 to extensions a' of back-arms H, adapted to engage pockets I, secured to each end of the seat-back, as shown in Fig. 1. These pockets may be secured to the seat-back by screws passing through ears 8, formed thereon, as shown, or in any other suitable manner, and they may be made to extend from the bottom edge of the back up to about the horizontal center line thereof in order to form a substantial detachable connection between the arms and the back, which by reason of the above-described manner of attachment can readily be removed for cleaning and other purposes and afterward quickly replaced, thus affording convenience and economy in removing and replacing the backs. The cushion-rockers carry the seat-frame on which the cushion is formed, and they are moved to and fro up and down the inclined surfaces of the sockets 1 by the shifting of the said back-arms, as hereinafter described. They are by preference located in close proximity to the inner sides of the end plates; but they may be located at a greater distance from said plates and arranged to operate directly on the seat-rails. We consider, however, the location as first described preferable to the latter. These rockers are composed of two side pieces 9 10, united at their ends by cross-ties 11, and they are preferably cast in one piece, the side 9 being placed next to the seat end and having projecting pins or studs 12, forming journals for rollers 13, which operate in the radial slots 3 with the travel of the rockers. The said studs are provided with washers or enlarged heads 14, which overlap the seat ends and form guides for retaining the rockers in line. Other forms of guides may, however, be employed for the purpose. The side pieces 9 are cut away at 15 to receive the ends of a rock-shaft J, extending longitudinally across the seat and having a bearing in each of the side pieces 10 at each end of the

seat, the said bearings being formed one-half in the side pieces and one-half in detachable caps 16, attached to the lower edge thereof, as more clearly shown in Fig. 5, and by which construction the said shaft can be conveniently placed in position and removed.

A pin 17 at each end of each rocker projects upwardly therefrom to receive a cushion-frame K, having holes 18 in the under side thereof, and which holes the said pins engage to retain the cushion-frame in proper relation to the rockers and to the seat-frame, and whereby the cushion is carried forward and backward and tilted with the rockers, which movements are caused by the shifting of the seat-back, the cushion-frame being removable from the rockers by simply raising it to clear the pins 17 and having no projections on the under side thereof to interfere with the piling of a number of cushions one upon another, as is desirable to do when the seats in a car are being renovated.

Connecting-arms L, the length of which correspond with that of the arms 5 and 6, are secured at their lower ends to the shaft J, one at each end thereof, their upper ends being pivoted at 18 to the back-arms H, the upper pivotal connections of the arms 5 6 and L being on a line at right angles to the longitudinal center of the back-arm, and the lower pivotal centers of arms 5 and 6 and of the shaft J being on a line parallel with the upper pivotal line only when the said lever-arms, the said connecting-arms, and the said back-arms stand in a vertical position, as shown in Fig. 2, the angle of the lower pivotal line changing with the shifting of the rockers to which the lever-arms are pivoted and with which the shaft J travels as the group is moved in either direction from a vertical position, the arms L being arranged to clear the lower curved ends of the arms 5 and 6, so as to permit the former to pass by the latter in reversing. The arms L are each provided with a pin or stud 19, on which rollers 20 are journaled and which projects through an opening 21, cut through the side 9 of each of the rockers G, and which also projects through the vertical slots 2 in the end-plates A and B, the travel of the rockers in either direction from the center of the seat being limited by the distance from the shaft J that the pin 19 is located. In other words, the said pin and roller act as an eccentric traversing the vertical slot 2 in each of the plates A B while the lever-arms are shifting, thus causing the shaft J, the rockers G, the lever-arms 5 and 6, the connecting-arms L, the back-arms H, and the cushion-frame K to move in unison as the seat-back is shifted to and fro across the seat-frame, the rockers traversing up and down the inclined surfaces of the sockets 1 or of the seat-rails D E, when the rockers are located to rest directly on the latter and whereby a quiet and easy movement is obtained. The lower ends of the arms L are each provided with a hub 22, by which the

arms are secured between the sides 9 and 10 of the rockers to the shaft J by pinning or otherwise and by which the rockers are connected together and lateral displacement of the shaft prevented, the latter being rocked by the movement of the arms L. It is to be understood, however, that the movement of the back in reversing is not necessarily dependent upon the hereinbefore-described cushion-operating mechanism and that the same may be omitted without affecting the operation of the back, which can be shifted to and fro across the seat by means of the arms 5 and 6 and their pivotal connections with the back and rockers, the latter remaining stationary at all times, in which case the cushion would assume a fixed level position and would be made correspondingly narrower by reason thereof, the rockers then acting as mere supports for the cushion, and, if desired, they may be made fast to the rails D and E.

In Fig. 2 of the drawings the seat-back is shown by solid lines in a semireversed position and by dotted lines in each of its normal positions, in either of which the cross-ties act as stops for one or the other of the lever-arms 5 and 6 at each end of the seat to strike against and to retain the seat-back in proper position. By referring to the said figure of the drawings it will be observed that the arc in which the back travels in reversing is such as to cause the lower edge thereof to move clear of the cushion during the complete operation.

By means of the hereinbefore-described mechanism the width of the cushion can be reduced one inch or more, for the reason that a greater movement of the rockers can be obtained and the cushion moved forward to the full limit of the space allotted to it, and thus no part thereof need extend under the back, as has heretofore been necessary in the class of seats to which this invention relates in order to provide a desired amount of seating-space.

An important feature of our improved seat is that the lower edge of the back thereof when in either of its normal positions is close to the cushion, thus obviating a serious objection to most of the car-seats in common use and in which there is an open space between the cushion and the back through which articles laid on the cushion can fall.

Another important improvement in the within-described seat is the manner in which a pair of foot-rests M are arranged to operate. These foot-rests are attached at or near the ends thereof to brackets N, pivotally connected at the aisle end to a post 23, projecting from the stand C, and at the opposite end to a post 24, projecting from an arm b, extending downwardly from the end plate B, as more clearly shown in Figs. 6 and 9. They may, however, be pivoted to any suitable supports adjacent to the seat-frame. At the center of the said brackets and above their pivotal points extend upwardly bifurcated guides

25, adapted to engage the lower ends of levers P, having rounded lower ends 26 and contracted necks 27, and which levers are pivoted at 28 to posts 29 and 30, projecting from the end plates A and B, and which levers are provided with upwardly-extending bifurcated branches 31, adapted to engage the rock-shaft J, and thus as the rockers are moved by the shifting of the seat-back the levers P will be rocked and in turn will impart a reverse rocking movement to the brackets N, whereby one of the foot-rests will assume a position to afford a comfortable foot-rest for passengers occupying the adjacent rear seat, while the other will be held in an elevated position behind the forward seat-rail, and when the back is in a semireversed position, as shown by the solid lines in Fig. 2, both of said foot-rests will be held in a semi-elevated position, thereby facilitating cleaning of the car-floor, bearings 32 being provided at each side and at each end of the seat to support the foot-rests.

In the foregoing we have described what we now believe to be the best manner of carrying out our invention. It is obvious, however, that the structural details described and shown herein may be modified and departed from without departing from the spirit of the invention. Therefore we do not limit our invention to the exact construction shown and described, and we desire that it should be understood our invention does not of necessity contemplate the employment at both ends of the seat of the within-described shifting mechanism.

What we claim is—

1. In a car-seat of the class described, a seat-frame, shiftable cushion-carrying rockers carried thereby, a shiftable seat-back carried by the rockers, and arms which pivotally connect the seat-back and rockers, in combination with mechanism for imparting a forward and tilting movement to the rockers by the shifting of the seat-back, substantially as set forth.

2. In a car-seat of the class described, a seat-frame, shiftable cushion-carrying rockers carried thereby, a shiftable seat-back carried by the rockers, and arms which pivotally connect the seat-back and rockers, in combination with mechanism for imparting a forward and tilting movement to the rockers by the shifting of the seat-back, and stops for limiting the movements of the seat-back and rockers, substantially as set forth.

3. In a car-seat of the class described, a seat-frame, shiftable cushion-carrying rockers carried thereby, a shiftable seat-back carried by the rockers, arms which pivotally connect the seat-back and rockers, and mechanism for imparting a forward and tilting movement to the rockers by the shifting of the seat-back, in combination with foot-rests rotatively connected with the seat-frame, and a device intermediate the rockers and the foot-rests whereby the latter are rocked by the move-

ment of the rockers, substantially as set forth.

4. In a car-seat of the class described, a seat-frame, shiftable cushion-carrying rockers carried thereby, a shiftable seat-back carried by the rockers, arms which pivotally connect the seat-back and rockers, and mechanism for imparting a forward and tilting movement to the rockers by the shifting of the seat-back, in combination with foot-rests rotatively connected with the seat-frame, a device intermediate the rockers and the foot-rests whereby the latter are rocked by the movement of the rockers, and stops for limiting the movement of the foot-rests, substantially as set forth.

5. In a car-seat of the class described, the combination of a seat end having extensions, a cushion-carrying rocker movably supported on said extensions, a back-arm adapted to be attached to a seat-back, a plurality of lever-arms whose lower ends are pivoted to the rocker and whose upper ends are in pivotal connection with said back-arm and whereby the position of the back-arm is shiftable from one side of the seat end to the other; the said lever-arms and the said back-arms being carried by said rocker, and mechanism by which the said rocker is shifted by the movement of the back-arm in a reversed direction thereto, substantially as set forth.

6. In a car-seat of the class described, the combination of a seat end having extensions, a cushion-carrying rocker movably supported on said extensions, a back-arm adapted to be attached to a seat-back, a plurality of lever-arms whose lower ends are pivoted to the rocker and whose upper ends are in pivotal connection with said back-arm and whereby the position of the back-arm is shiftable from one side of the seat end to the other; the said lever-arms and the said back-arms being carried by said rocker, mechanism by which the said rocker is shifted by the movement of the back-arm in a reverse direction thereto, and stops for limiting the movements of the lever-arms and rocker, substantially as set forth.

7. In a car-seat of the class described, the combination of a seat end having extensions, a cushion-carrying rocker movably supported on said extensions, a back-arm which is adapted to be attached to a seat-back, a plurality of lever-arms whose lower ends are pivoted to the rocker and whose upper ends are in pivotal connection with said back-arm and whereby the position of the back-arm is shiftable from one side of the seat end to the other; the said lever-arms and said back-arm being carried by said rocker, mechanism by which the said rocker is shifted by the movement of the back-arm in a reverse direction thereto, a foot-rest bracket, and a device intermediate the rocker and said bracket whereby the latter is rocked by the movement of the former as the lever-arms are shifted, substantially as set forth.

8. In a car-seat of the class described, the combination of a seat end having extensions,

a cushion-carrying rocker movably supported on said extensions, a back-arm which is adapted to be attached to a seat-back, a plurality of lever-arms whose lower ends are pivoted to the rocker and whose upper ends are in pivotal connection with said back-arm and whereby the position of the back-arm is shiftable from one side of the seat end to the other; the said lever-arms and said back-arm being carried by said rocker, mechanism by which the said rocker is shifted by the movement of the back-arm in a reverse direction thereto, a foot-rest bracket, a device intermediate the rocker and the said bracket whereby the latter is rocked by the movement of the former as the lever-arms are shifted, and stops for limiting the movement of the bracket, substantially as set forth.

9. In a car-seat of the class described, a seat-frame consisting of a pair of ends united by a pair of rails, cushion-carrying rockers supported by the rails, a seat-back adapted to be shifted to and fro across the seat, lever-arms in pivotal connection with the back and which lever-arms are pivoted to the rockers, and whereby the back is shiftable supported independently of operative connection with the seat-frame, in combination with mechanism coöperating with the lever-arms whereby the rockers are moved in an opposite direction thereto, substantially as set forth.

10. In a car-seat of the class described, a seat-frame consisting of a pair of ends united by a pair of rails, cushion-carrying rockers supported by the rails, a seat-back adapted to be shifted to and fro across the seat, lever-arms in pivotal connection with the back and which lever-arms are pivoted to the rockers, and whereby the back is shiftable supported independently of operative connection with the seat-frame, in combination with mechanism coöperating with the lever-arms whereby the rockers are moved in an opposite direction to the movement of the lever-arms, and stops for limiting the movements of the back and rockers, substantially as set forth.

11. In a car-seat of the class described, a seat-frame, cushion-carrying rockers supported thereby and rotatively movable thereon, a seat-back adapted to be shifted to and fro across the seat, lever-arms in pivotal connection with the back and with the rockers whereby the back is carried by the rockers independently of operative connection with the ends of the seat-frame, mechanism coöperating with the lever-arms to move the rockers in an opposite direction to the movement thereof; the lower pivoted ends of the said lever-arms being shiftable with and in the direction of the travel of the rockers, substantially as set forth.

12. In a car-seat of the class described, a seat-frame, cushion-carrying rockers supported thereby and rotatively movable thereon, a seat-back adapted to be shifted to and fro across the seat, lever-arms in pivotal connection with the back and with the rockers

whereby the back is carried by the rockers independently of operative connection with the ends of the seat-frame, mechanism cooperating with the lever-arms to move the arms in the opposite direction to the movement thereof, and stops for limiting the movements of the lever-arms and rockers, the lower pivoted ends of the said lever-arms being shiftable with and in the direction of the travel of the rockers, substantially as set forth.

13. In a car-seat of the class described, a seat-frame, cushion-carrying rockers supported thereby and rotatively movable thereon, a seat-back adapted to be shifted to and fro across the seat, lever-arms in pivotal connection with the back and with the rockers and by which the back is carried by the rockers; the lower pivoted ends of the said lever-arms being shiftable in the direction of the travel of the rockers, movable foot-rests mounted below the seat, mechanism cooperating with the lever-arms to move the rockers in an opposite direction thereto, a device connecting the foot-rests with the rockers whereby the former will be rotated by the movement of the latter, and stops for limiting the movements of the lever-arms, the rockers and the foot-rests, substantially as set forth.

14. In a car-seat of the class described, a seat-frame consisting of a pair of ends united by a pair of inclined surfaced rails, a seat-back, a cushion-carrying rocker supported by said rails at each end of the seat-frame, a pair of lever-arms whose upper ends are pivotally connected with the seat-back at each end thereof on a line at right angles to the center vertical line of the back and equidistant therefrom, and whose lower ends are pivoted directly to the said rockers and shiftable therewith in the direction traveled thereby, and stops for limiting the movements of the lever-arms and rockers, in combination with a rock-shaft mounted in the rockers, and mechanism pivotally connecting the rock-shaft with the seat-back, whereby the shifting of the seat-back to and fro across the seat will move the rockers up and down the inclined surfaces of the seat-rails in an opposite direction to the movement of the seat-back, substantially as set forth.

15. In a car-seat of the class described, a seat-frame, and shiftable cushion-carrying

rockers carried thereby, in combination with a shiftable seat-back which is in pivotal connection with and carried by the rockers, and a rock-shaft mounted in the rockers and having operative connections between the seat-back and the frame, substantially as set forth.

16. In a car-seat of the class described, a seat-frame, and shiftable cushion-carrying rockers carried thereby, in combination with a shiftable seat-back which is in pivotal connection with and carried by the rockers, a rock-shaft mounted in the rockers and having operative connections between the seat-back and the frame, foot-rests mounted below the seat and means whereby the foot-rests are rotated by the movement of the rock-shaft caused by the shifting of the rockers, substantially as set forth.

17. In a car-seat of the class described, a seat-frame, and shiftable cushion-carrying rockers carried thereby, in combination with a pair of shiftable back-arms which are in pivotal connection with and carried by the rockers independently of operative connection with the ends of the seat-frame, a seat-back detachably supported by said back-arms, whereby the back can readily be removed and placed in position on the seat and shifted to and fro across the same, and mechanism for imparting a forward and tilting movement to the rockers, substantially as set forth.

18. In a car-seat of the class described, a seat-frame, shiftable cushion-carrying rockers carried thereby, a cushion-frame carried by the rockers, and pins projecting upwardly from the rockers and adapted to engage holes in the cushion-frame, in combination with a shiftable back which is in pivotal connection with and carried by the rockers, independently of operative connection with the ends of the seat-frame, and mechanism for imparting a forward and tilting movement to the rockers, substantially as set forth.

In testimony whereof we hereunto subscribe our names this 21st day of February, 1898.

HENRY TESSEYMAN.
JOHN KIRBY, JR.

Witnesses:

N. EMMONS, Jr.,
E. L. EIDEMILLER.