

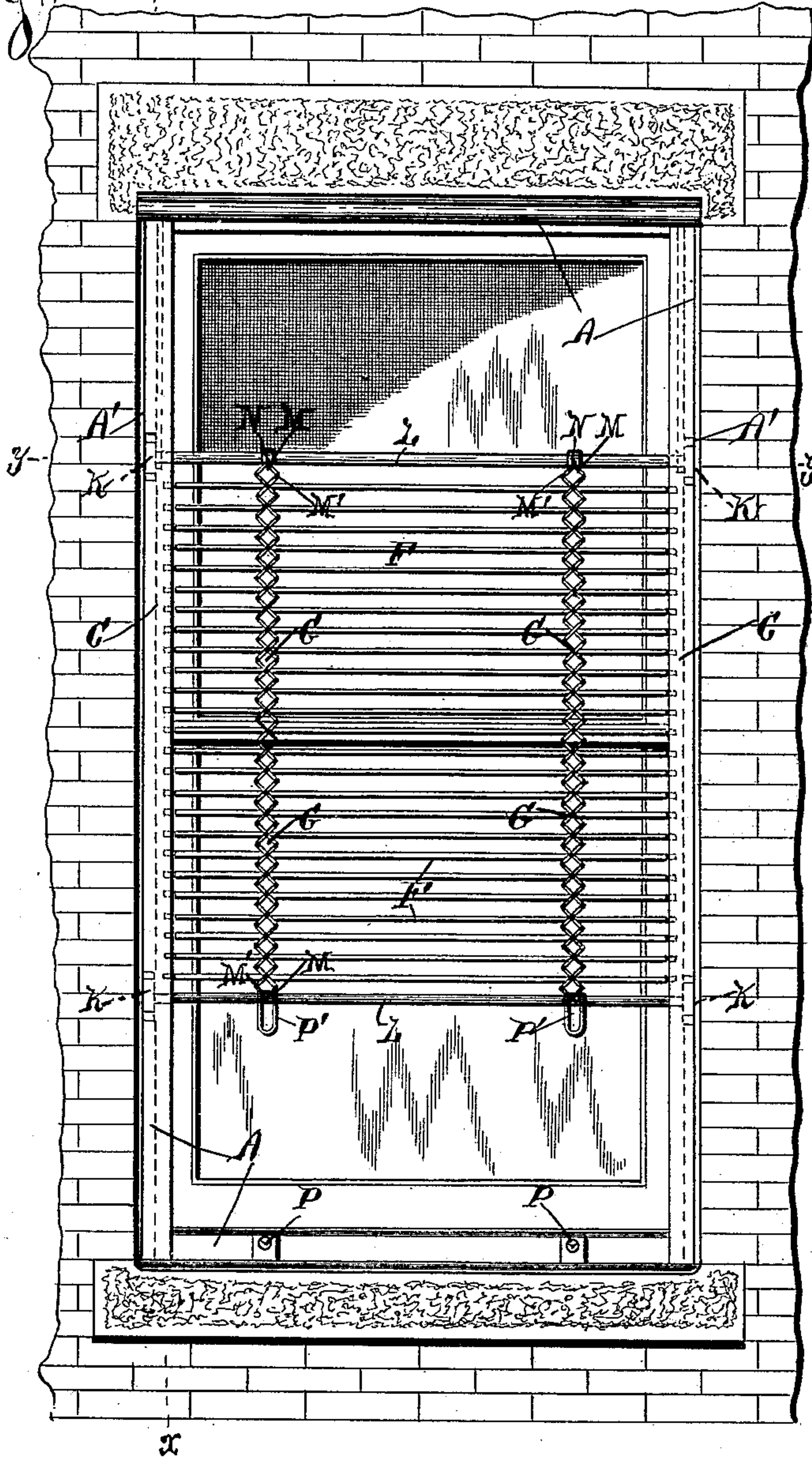
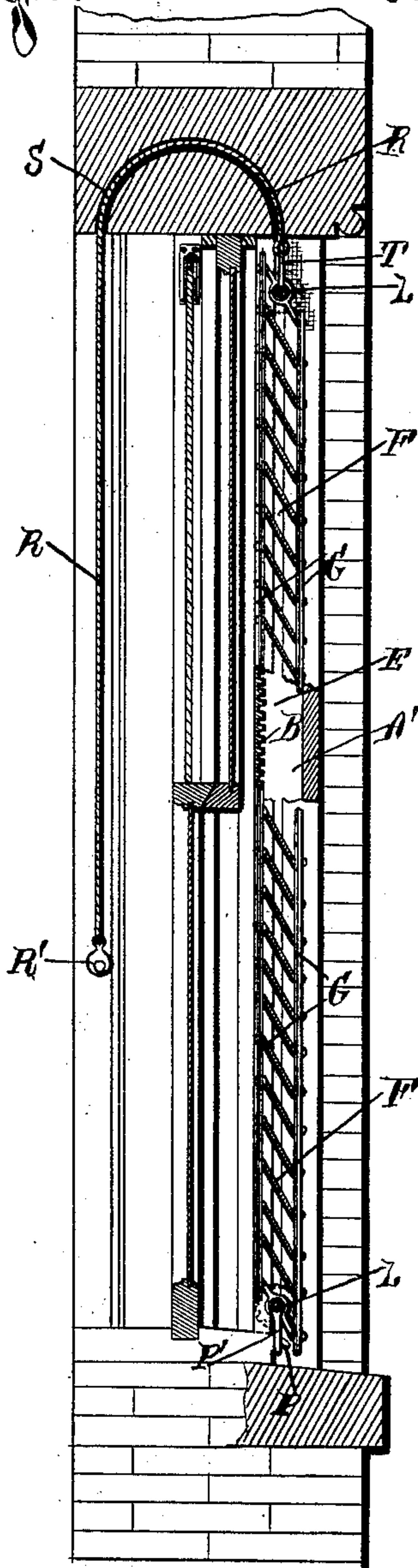
(No Model.)

2 Sheets—Sheet 1.

J. NAYLOR, Jr.
BLIND.

Patented May 20, 1890.

No. 428,570.



WITNESSES:

W. C. Chase
W. H. Parsons

INVENTOR

James Naylor Jr.

BY

George W. Key
ATTORNEY

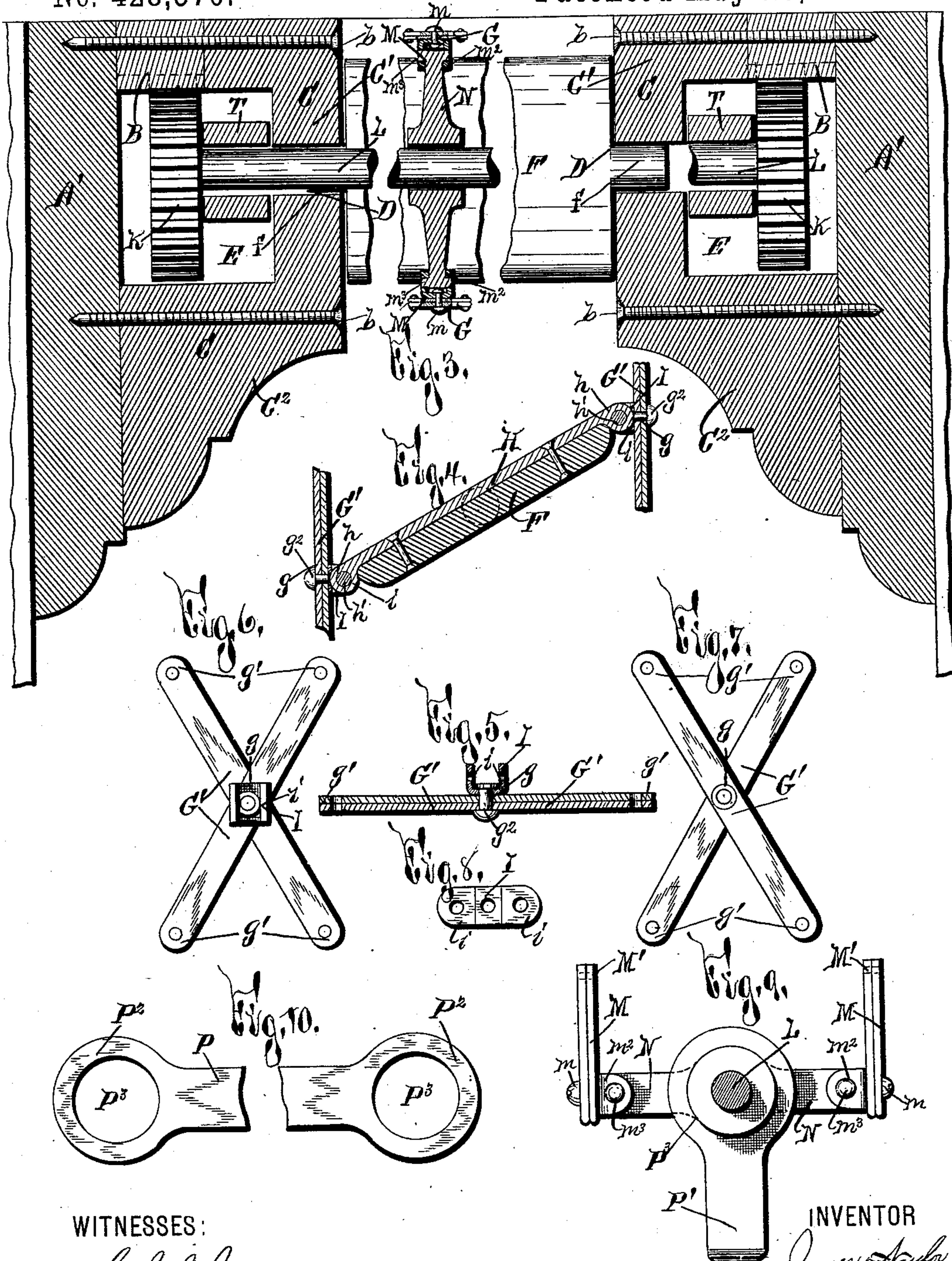
(No Model,)

2 Sheets—Sheet 2.

J. NAYLOR, Jr.
BLIND.

No. 428,570.

Patented May 20, 1890.



WITNESSES:

H. Chase
A. Parsons

INVENTOR

BY

James Naylor Jr.
George W. Key
ATTORNEY.

UNITED STATES PATENT OFFICE.

JAMES NAYLOR, JR., OF POUGHKEEPSIE, ASSIGNOR TO D. H. BURRELL & CO., OF LITTLE FALLS, NEW YORK.

BLIND.

SPECIFICATION forming part of Letters Patent No. 428,570, dated May 20, 1890.

Application filed September 25, 1889. Serial No. 325,031. (No model.)

To all whom it may concern:

Be it known that I, JAMES NAYLOR, Jr., of Poughkeepsie, in the county of Dutchess, in the State of New York, have invented new and useful Improvements in Blinds, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to an improved blind or shutter for windows, and has for its object the production of a simple and effective device, which is preferably arranged on the outside of the window, and is operated from the inside of the window to raise to the top, lower to the bottom, or to extend from the bottom to the top, as desired; and to this end my invention consists, essentially, in a number of slats arranged in a series and provided at the rear and forward edges thereof with an expansible connection for increasing or diminishing the length of the blind or shutter.

It also consists in a gear provided at the upper, lower, or both extremities of the blind and engaging an adjacently-mounted rack for insuring an easy and even raising of the blind.

It furthermore consists in a cord, chain, or other suitable connection secured to the top of the blind and passed through the building to the inside for allowing the ready engagement thereof, and it still further consists in the detail construction and arrangement of the parts, all as hereinafter more particularly described, and pointed out in the claims.

In describing my invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views—

Figure 1 represents an elevation of a detached portion of a building having a window provided with my improved blind or shutter. Fig. 2 is a sectional view taken on line *xx*, Fig. 1. Fig. 3 is a horizontal sectional view, taken on line *yy*, Fig. 1, with part thereof broken away, illustrating particularly the construction and arrangement of my invention. Fig. 4 is a vertical sectional view of a slat and a portion of the expansible connection or chain secured thereto. Fig. 5 is a sectional view illustrating one division or link of the ex-

pansible connection or chain for the blind. Figs. 6 and 7 are views illustrating opposite sides of the parts as shown in Fig. 5. Fig. 8 is a plan of the blank for forming the connection between the expansible connection or chain and blind-slat. Fig. 9 is a sectional view of the lower rail or bar for the window-blind, having shown thereon in elevation the lower extremities of the last link for the chain, and a loop for engaging a projecting lug in the sill of the window-frame; and Fig. 10 is a plan view of the blank for forming said loop illustrated in Fig. 9.

The window-frame A may be of any desirable form, size, and construction. On the adjacent sides of the vertical side bars A' of the window-frame are the rack B and the molding-strip C, which may be secured in any desirable manner, and, if desired, by screws or nails *b*. This strip or guide C, which is of desirable form and construction, and preferably provided at its outer face with a molding-surface, is composed of two parts or guide-rails C' and C², having an open slot or guideway D and an enlarged passage or way E interposed between said pieces.

The slats F of the blind are of suitable form and construction and two or more in number, and are preferably provided at their extremities with the projecting points or lugs *f*, guided in the open slots or guideways D. Connecting the slats F is an expansible connection or chain G, which is preferably composed of four divisions arranged in pairs near the extremities of said slats on the front and rear edges thereof. The divisions or cross-levers G' of this chain are preferably arranged in pairs and pivoted to each other at their central portion *g*, and pivoted to like cross-levers G' at their extremities *g'*.

In order to attach the chain to the slats F, I prefer to secure to the face of said slats the strip H, formed of suitable wearing material and provided at the extremities thereof with the eyes *h h*. Projecting from the central portion *g* of the separate cross-levers G' of the chain G is the lug or lugs *i*, which are pivoted to the eyes *h* of the plate H in any suitable manner, and preferably by a pin *h'*, passed through said lug and eye. This lug *i*

is formed by bending toward each other the opposite extremities of a plate I, which is secured to the central portion g of the said cross-bars of the chain G by means of the pivotal pin g^2 of said bars.

It will readily be understood that when the cross-bars G' of the chain G are separated from each other, thus widening said chain, the separate blind-slats secured to the separate pairs of cross-bars will be approximated together, and that the length of the window-blind will be shortened. On the other hand, when the upper extremities of said cross bars or levers are approximated toward each other the width of the chain will be lessened and the slats will be separated from each other. This adjustment of the slats toward and away from each other in a plane the same as that of the window is a feature of great advantage, since it decreases or increases the length of the window-blind, according to desire, by simply separating or approximating the levers G' , composing the chain G.

If it is desired to close the window-blind, so that the slats thereof shall prevent the entrance of light, it is only necessary to force either the rearward or forward edges of said blinds upward or downward, whereupon the blinds will turn upon the projections f thereof without affecting the relative arrangement or adjustment of the cross-bars G' and will merely raise or lower the same, according to the position of the edge of the blind-slats.

The ability to rock the blind-slats, or rather change their angle of inclination, without affecting the adjustment of the chain G is of great advantage and is due to the connection or lug i being pivoted to the eyes h of the strip H, secured to the blind, since when the angle of inclination of the slats is changed the said slats merely rock on the pivotal pin of the lugs i . It will be understood, however, that as the forward edge of the blind-slats is rocked downward and the rearward upward, or vice versa, the entire chains at the front and back of the slats will move as a whole the same distance as the edge of the slats to which they are secured, but that this movement effects no change in the adjustment of either the chain or the slats.

In order to provide for the ready and even raising or lowering of the blind, I secure thereto the gears or pinions K, which mesh with the rack B and ride in the way or passage E of the guide C. The preferable manner of securing these gears to the blind-slats is by mounting the same at the opposite extremities of cross-bars or shafts L, arranged preferably at the top and bottom of said blind. These cross-bars L ride in the guideways or slots D, formed in the guide C, and are connected to the adjacent blind-slats by means of levers M, pivoted at one extremity to a lever N, loosely mounted on said bars and pivoted at M' to the free extremities of the cross-levers G' .

As best shown in Figs. 3 and 9, the prefer-

able manner of pivoting the lever N to the adjacent extremities of the connecting levers or links M consists in securing to said levers, by a pin m , a plate m^2 , having its opposite extremities turned toward each other and pivoted at m^3 to the adjacent extremities of said lever.

It will be understood that as levers N are loosely mounted upon the rods L the rotation of said rods occasioned by the movement of the blind is not transmitted to said levers, and consequently the position of the blind-slats is not affected by the upward movement of the blind.

By means of the racks B and gears K a very even and easy movement is produced, allowing the blind to be readily raised or lowered with great ease and without any liability of cramping. When desired to extend the blind the whole length of the window, I prefer to secure the base thereof by means of a suitable catch P, which may be of desirable form and construction. As illustrated, this catch consists of a hooked stud projecting from the window-sill, which is engaged by a depending loop P' , secured upon the lower rod L, and preferably around the hub of the lever N, loosely mounted upon said rod. This loop is preferably formed by approximating the opposite extremities P^2 of a suitably-shaped blank. These extremities are provided with openings P^3 , of sufficient size to loosely socket over the opposite projecting hubs of said lever N, and are securely retained in position thereby. When the blind is lowered, the loop automatically rides over the hooked projection P, and upon the elevation of the blind catches beneath the hook thereof.

In order to allow of the ready raising and lowering of the blind, I secure at the upper extremity thereof, in any desirable manner, a cord R, formed of any suitable material and having its other extremity extended through a passage S in the building into the interior thereof, and preferably formed with a suitable means R' for readily engaging the same. The preferable manner of securing this cord to the window-blind is by providing thereon, within the way E of the molding C, a suitably-shaped loop T, loosely mounted on the rod L and attached to said cord.

It will thus be understood that the blind can be raised and lowered from the inside of the building, and that the entrance of the sun is governed as desired. Moreover, by means of the catch P at the window-sill the blind can be lowered until the loop P' at the lower extremity thereof engages said catch, and upon the elevation of the blind the cord R can be secured on the inside of the window, and the window-blind is then securely locked from intruders.

This blind possesses an additional feature of advantage, in that as the same is on the outside of the building the sun is prevented from entering to the inside of the window-glass U, and consequently the heat of the

room is greatly reduced. Moreover, by reason of the adjustability of said blind, the same may be used to shut off the entrance of the sun at the lower part and allow the entrance of light at the upper part, or vice versa, according to the position of the sun.

My invention is readily manufactured, since the parts are very simple in construction, and whatever metal parts are needed can be stamped out of sheet metal at a slight cost of production. When in operation, the blind, being securely held by chains on the forward and rearward edges thereof, is prevented from rattling, and owing to its peculiar construction an even and easy operation and great durability in use are produced.

The operation of my invention will be readily perceived from the foregoing, and it will be understood that considerable change may be made in the relative construction and arrangement of the parts without departing from the spirit of my invention; hence I do not limit myself to its precise form and construction.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a window-blind, the combination of slats, an expansible chain connected to the forward or outer edge of said slats, and a second expansible chain connected to the rearward or inner edge of said slats, substantially as set forth.

2. In a window-blind, the combination of slats, an expansible chain for separating or approximating said slats, and a connection between said slats and chain, said connection being pivoted to one of said parts, whereby the angle of the slats may be changed without affecting the adjustment of said chain, substantially as described.

3. In combination with a window-sash, slats on the outside of said window, an expansible chain for separating or approximating said slats, a connection between said slats, and chain, said connection being pivoted to one of said parts, whereby the angle of the slats may be changed without affecting the adjustment of said chain, and a connection from said blind-slats to the inside of the window-sash, whereby the slats may be operated, substantially as and for the purpose described.

4. In a window-blind, the combination of slats, an expansible chain connected to the forward or outer edge of said slats, a second expansible chain connected to the rearward or inner edge of said slats, wheels connected to the opposite extremities of said slats, and bearings against which said wheels bear, substantially as specified.

5. In a window-blind, the combination of slats, an expansible chain for separating or approximating said slats, a connection between said slats and chain and pivoted to one of said parts, whereby the angle of the slats may be changed without affecting the adjust-

ment of said chain, wheels connected to the opposite extremities of said slats, and bearings against which said wheels bear, substantially as and for the purpose described.

6. In a window-blind, the combination of slats, an expansible chain connected to the forward or outer edge of said slats, a second expansible chain connected to the rearward or inner edge of said slats, gear-wheels aligned with the opposite extremities of said slats, a connection between said gear-wheels and slats, and racks for engaging said gear-wheels, substantially as specified.

7. In a window-blind, the combination of slats, an expansible chain for separating or approximating said slats, a connection between said slats and chain and pivoted to one of said parts, whereby the angle of the slats may be changed without affecting the position of said chain, gear-wheels aligned with the opposite extremities of said slats, a connection between said gear-wheels and slats, and racks for engaging said gear-wheels, substantially as specified.

8. In a window-blind, the combination of slats, an expansible chain for separating and approximating said slats, a connection between said slats and chain and pivoted to one of said parts, whereby the angle of the slats may be changed without affecting the adjustment of said chain, guides at the extremities of said slats, and lugs provided on one or more of the slats for engaging said guides, substantially as set forth.

9. The combination of a movable blind, guides at the extremities of said blind, a way provided in said guides, and wheels working within said way, substantially as specified.

10. The combination, with a blind, of a cross-bar secured to said blind, gear-wheels mounted at the extremities of said bar, and racks for engaging said wheels, substantially as specified.

11. In a blind, the combination of guides for the blind, projecting extremities for engaging said guides, a cross-bar secured to the blind and riding in said guides, gears provided upon said cross-bar, and racks for engaging said gears, substantially as specified.

12. In a window-blind, the combination of slats arranged one above the other, cross-bars pivoted to each other, a connection between said cross-bars and one of said slats and pivoted to one of said parts, a second number of cross-bars pivoted to each other and pivotally connected to said first number of cross-bars, and a connection between said second number of cross-bars and a second one of said slats, substantially as described.

13. The combination of a slat F, a strip H, a connection I, pivoted to the extremity of said strip, and cross-bars G', pivoted to said connection, substantially as specified.

14. The combination, with a blind, of a rod L, and gear-wheels mounted on said rod, the lever or arm N, the connecting levers or links

M, pivoted to said lever N and pivotally connected to the blind, substantially as specified.

15. The combination, with a blind, of a rod L, and gear-wheels mounted on said rod, the
5 lever or arm N, the connecting levers or links M, pivoted to said lever N and pivotally connected to the blind, and a hook P', supported by said rod L, substantially as specified.

16. In a blind, the combination of slats F,
10 cross-bars G', a connection I between said slats and cross-bars, a rod L, gear-wheels mounted on said rod, a lever or arm N, and

links M between said arm and cross-bars G', substantially as set forth.

In testimony whereof I have hereunto signed 15
my name, in the presence of two attesting witnesses, at Little Falls, in the county of Herkimer, in the State of New York, this 17th day of September, 1889.

JAMES NAYLOR, JR.

Witnesses:

A. J. ADAMS,

GEO. W. SEARLES.