No. 786,841. PATENTED APR. 11, 1905.

G. J. RECORD.

DOOR, SCREEN, OR CURTAIN.

APPLICATION FILED NOV. 5, 1904.

2 SHEETS—SHEET 1.

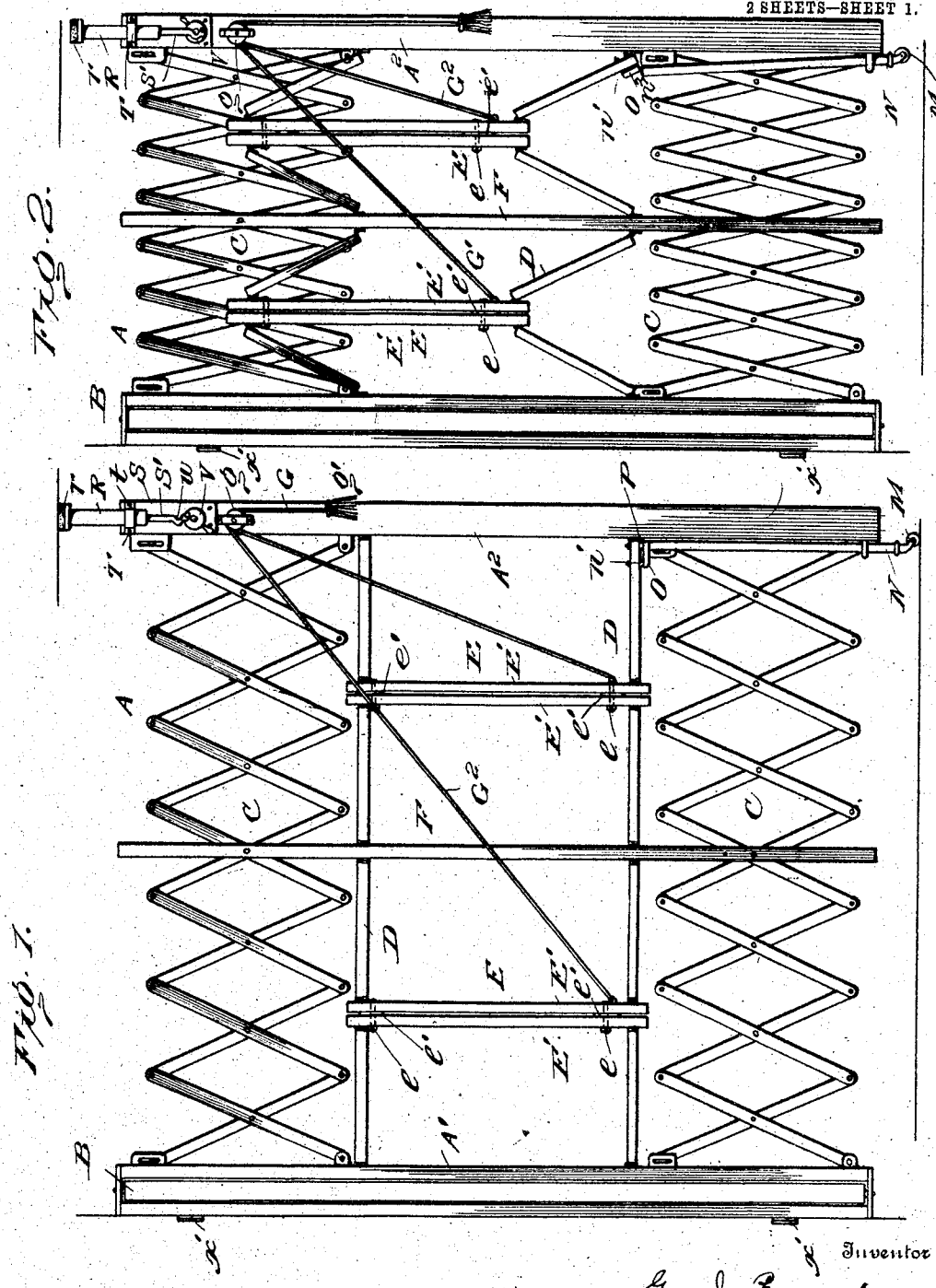


Fig. 2.

Fig. 1.

Witnesses

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Fig. 5.

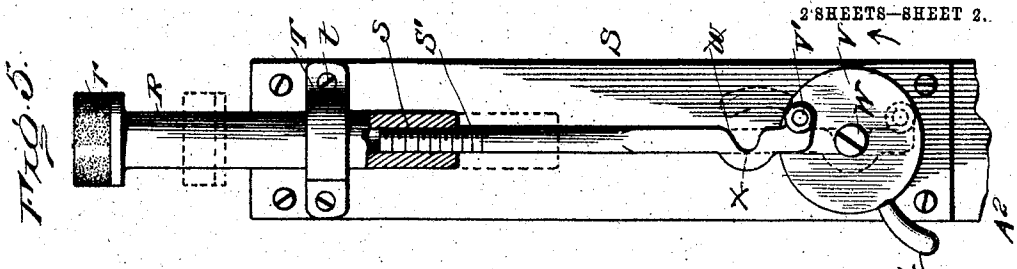


Fig. 4.

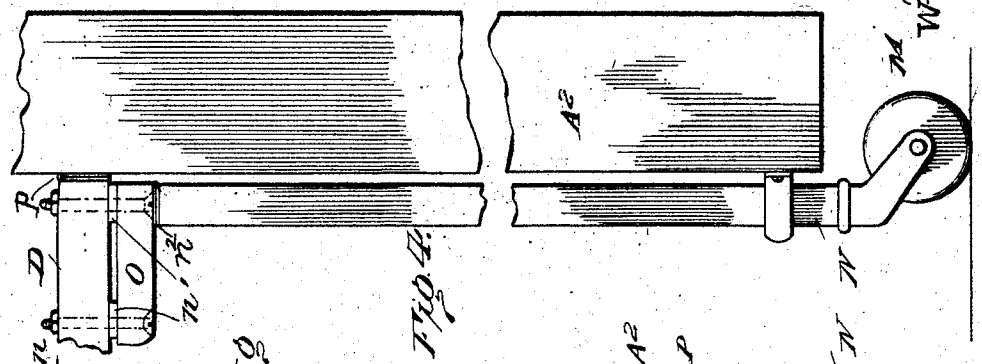
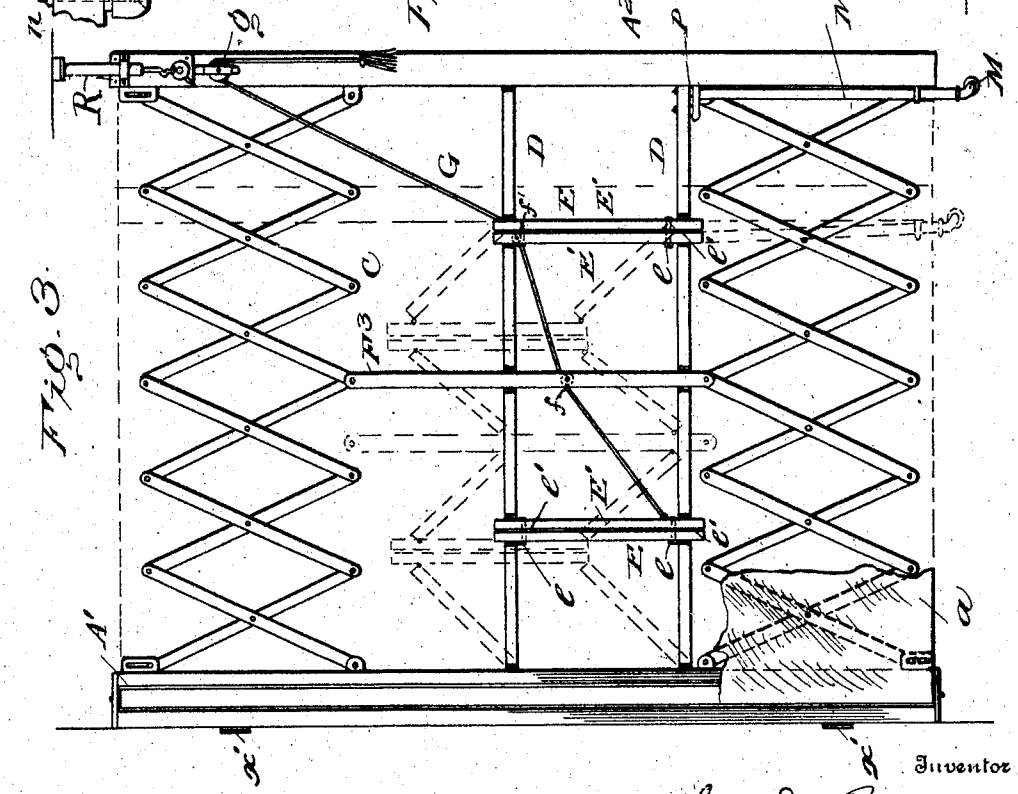


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE J. RECORD, OF CONNEAUT, OHIO.

DOOR, SCREEN, OR CURTAIN.

SPECIFICATION forming part of Letters Patent No. 786,841, dated April 11, 1905.

Application filed November 5, 1904. Serial No. 231,595.

To all whom it may concern:

Be it known that I, GEORGE J. RECORD, a citizen of the United States, residing at Conneaut, in the county of Ashtabula and State of Ohio, have invented certain new and useful Improvements in Doors, Screens, or Curtains; 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 is an improvement on the subject-matter of Letters Patent No. 768,693, granted to me August 30, 1904, and of application, Serial No. 221,142, filed August 17, 1904. Its chief objects are to adapt the door or screen more perfectly to be used without change in or damage to the floor or door-frame, while permitting the opening, closing, and secure locking of the said door, to facilitate and perfect the fitting of the door in its frame with adjustment to greater or less width of doorway or irregularity in its form, and generally to improve the efficiency and durability of the door or screen and make it more suitable to fine surfaces and costly apartments.

To these ends my invention consists in the construction and combination of parts hereinafter more particularly set forth and claimed.

In the accompanying drawings, Figure 1 represents a front elevation of a door-section embodying my invention expanded. Fig. 2 represents a similar view of the same partly contracted. Fig. 3 represents a view similar to Fig. 1 of a modification. Fig. 4 represents a detail side elevation of the caster and its bar with proximate parts; and Fig. 5 represents a front elevation of the bolt and proximate parts broken away at one point, the withdrawn position being shown in dotted lines.

A designates one of the two corresponding sections which make up a door or screen embodying my invention. If used alone, it becomes an entire door or screen. It has by preference two spring-rollers B and two flexible sheets *a*, constituting the body of the door, arranged as shown in the said application, inclosing the lazy-tong bars C, but may have instead only a single spring-roller and sheet, as in said patent. The said lazy-tong bars, as shown in Fig. 1, consist of an upper and a lower series, each divided into two subseries by an upright wooden middle strip F, extending the full height of the door and parallel to the end strips or uprights A′ A^2 of the said door-section. Each subsection of lazy-tong bars is hinged at its inner end to the said middle strip or upright bar F and at its upper end to one of the said end strips or uprights A′ or A^2. The general operation of the door-section or door is as stated in the said patent and application, and of course it is practicable to use a single continuous series of lazy-tong bars, as shown in Fig. 4, instead of each of the divided series above referred to.

Between strips or uprights A′ and F, also A^2 and F, are lock-bars D, arranged in pairs, each pair having its two members hinged at their proximate inner ends to opposite sides of a vertically-movable bar E, adjustable for width, their outer ends being hinged to the said strips or uprights. There are two of these pairs of lock-bars for each bar E, and they correspond in position to each subsection of the lazy-tong bars. Of course one bar E and the two pairs of lock-bars hinged thereto may be dispensed with whether the construction shown in Fig. 1 be otherwise adhered to or the door or door-section be limited to the space bounded by and including the space A′ and F.

Each bar E is composed of parallel strips E′, which are fastened together near their upper and lower ends by transverse adjusting-screws *e* and separated by interposed blocks or layers *e′*, respectively, near the upper and lower ends of the bar. By removing these blocks or layers and substituting similar pieces of greater or less thickness with, of course, the necessary alternate loosening and tightening of the screws *e* the bar E will be increased or decreased in width, of course correspondingly widening or narrowing the door to suit a wider or narrower doorway. Also the upper part of the door may be widened and the lower part left without change, or narrowed, or the reverse procedure may be adopted to

suit any irregularity of the door-frame, which very often is not a perfect rectangle. Sometimes the door-jamb is left with an inner face inclined more or less from the vertical line by inaccuracy of workmanship. In other instances, warping of the wood or a slight settling of the structure may produce the same result, which, however, would be hardly observable until the application of the door to the doorway. As these doors are intended largely for use in apartments and other places where the remodeling or cutting of the permanent structure would be objectionable, it becomes highly important to secure a perfect fit by the adjustment of the door itself.

To conveniently operate the bars E and lock-bars D, I extend branch cords G′ G² therefrom to cord G, which passes down over a pulley *g*, as shown in Fig. 1, on the upper part of upright A, the latter cord being provided at its lower end with a hand-knob *g*′, whereby it is pulled at will to raise the bars E and lift the lock-bars D out of their horizontal locking position into an inclined position, (shown in Fig. 2,) which permits the door to be folded together. The two sheets or curtains *a* at all times effectually hide the cords G′ G² and the inner mechanism of the door, but in said figures one of the said sheets has been mainly broken away to show said cords and mechanism.

In some instances, as shown in Fig. 3, I provide for making the door thinner by arranging the latch-bars D altogether in the space *i* between the two series of lazy-tong bars instead of overlapping the said series. In this construction the middle bar or strip F³ corresponding to F, before described, is connected at its top and bottom to the proximate parts of the two lazy-tong series, which are continuous from upright A′ to upright A². Consequently it does not extend over them to add to the thickness of the door. This last feature, however, is not essential, since it might be extended from top to bottom of the door without increase of thickness, provided each series of lazy-tong bars were divided into two subseries arranged and attached as in Fig. 1. In this form of my invention the two branch cords G′ G² are dispensed with and the single cord G is connected to both bars, passing from one to the other through bar F³, preferably over a pulley or antifriction-roller *f*, journaled therein. This point affords a fulcrum for the upward pull on the bar E, to which the end of the said cord is attached. As the cord passes under a pulley *f*′ in the upper end of the other bar E and runs thence to and over the said pulley *g*, a pull on said cord will raise both of said bars vertically, lifting the lock-bars into inclined position, as shown in dotted lines in Fig. 3, and leaving the door free to contract.

It is very desirable to provide for easily drawing out long door-sections or doors and also to insure immunity from unnecessary rubbing of the floor when they are folded together and turned out of the way. For these purposes I supply a caster or roller M on the lower end of a vertically-movable bar N, proximate to upright A² and connected at its upper end to the lower lock-bar D, hinged at P to said upright. When the said lock-bar is lowered into horizontal position, this caster or roller is forced down against the floor and will sustain the weight of the door and lessen the friction of its motion; but when the door is folded together the roller is no longer needed and would be in the way, besides wearing the carpet or floor unnecessarily. Accordingly the upward unlocking movement of said lock-bar lifts the said roller or caster above the floor.

If the bar N were connected directly to the lock-bar D at this point, it would not have sufficient vertical play to reliably effect this result. Therefore I interpose an inclined connecting-block O between them, making this adjustable on the under side of the bar N by screws *n* and interposed pieces *n*′, that the amount of play may be properly regulated. The upper end of bar N is connected (see Fig. 4) by hinge *n*² to the under side of the said block and will be lifted readily and without strain the predetermined distance. When the bar D is forced down into the first-mentioned or locking position, it bears squarely on the upper end of bar N, which is in alinement with the hinge P aforesaid. This also assists in enabling me to lock a door or section of a door securely without any mortising or other change of the woodwork, which is, perhaps, the most important feature of my invention. The said caster thus forced and held against the floor or sill is the lower of two folding or clamping devices thrust, respectively, upward and downward against the proximate parts of the door-frame or other permanent elements of the house structure. The other locking element or device is a bolt R, having a rubber head *r* arranged to bear upward against the lintel of the door-frame. This bolt is mounted on a plate S, which is fastened to the upright A² above the pulley *g*, before mentioned, or it may be opposite said pulley and on the other side of the door. The said bolt is guided by an arched metal strap T, which is held to said plate and upright by screws *t*. For the purpose of adjusting its movement and the degree of compression of the rubber head the said bolt is provided with a stem S′ of less diameter, screw-threaded at *s* into the similarly-screw-tapped lower end of the body of the said bolt. The lower end of this stem has a crank-arm *u* integral therewith, the same being connected eccentrically to an operating-disk V by a wrist-pin or stud V′. This disk is journaled on a stud W, removably attached to the plate S, and is provided with a handle W′. A recess X in stem S′ above the said crank-arm serves to engage the stud W, as shown in Fig. 5, when the bolt is withdrawn downward out of action,

and such engagement locks the bolt and operating-disk in such position until they are freed by suitably turning the said disk. By turning the handle in the direction of the arrow marked on Fig. 5 these parts are thus freed, the head r of the bolt is compressed against the lintel above it, and the handle W′ is turned to and beyond the point of alinement with the stud W and the bolt, so as to hold the latter securely in such position until said handle is turned back again for withdrawing the bolt. Rubber is the best material, as stated, for the head therefor, but felt or any other substance having the requisite compressibility and friction may be substituted if of a nature not to scratch the lintel while holding the top of the door securely thereto. Of course equivalent constructions of the bolt permitting longitudinal adjustment and other forms of disk or cam or their equivalents having substantially the eccentric locking action above described may be substituted for those herein set forth.

When the caster or roller before described is locked down on the floor or sill and the said bolt is locked up against the lintel, the door-section to which they are attached is securely locked in place, reducing the door-opening by one-half, while the other section of the double door will be left free for the opening. If a narrower door of only one section be used, these parts will answer the purposes of a latch in all ordinary circumstances. There is no need to mortise or otherwise deface or change the lintel or sill or floor, and no part of the permanent structure will be marked or in any way made unsightly by any movement of the door. When out of use, the latter will be compressed into small compass and turned aside, if desired, on ordinary door-hinges x', connecting upright A′ to the door-frame. As the operative parts are concealed between the sheets or curtains a when the rollers are used, or may be arranged and decorated in a pleasing manner when only one roller is used, the door of either kind becomes ornamental and well suited to apartments of the costliest structure and furniture.

When it is desired to close the doorway, the door being then in contracted condition and turned out of the doorway, as stated in the last preceding paragraph, it is first turned into the said doorway on the hinges connecting it with the door-casing. The outer upright A^2 is then drawn open by hand, extending the said door until the hinged lock-bars D are horizontal. As the said lock-bars are in alinement with each other and with the line of travel of the door in contracting, they lock the door against contraction. As already stated, the same movement of the said bars down into horizontal position forces the caster M against the floor. As the hinges n^2 and P are practically in alinement with the straight rod N, carrying said caster, and as the hinge P connects to upright A^2 the bar D, which is hinged by n^2 to said rod, there is need only of a device forced upward against the lintel of the door and held so approximately in line with said rod to lock the said door securely by upward and downward pressure. This locking not only reinforces that of the lock-bars D, but prevents the swinging of the door outwardly as a whole, on the hinges x', connecting it to the door-casing. These hinges are not essential to my invention, however, as the door when contracted will occupy but little space in the doorway.

The movement of bars D into horizontal position above described will draw up the free end of the cord G. When the door is to be opened, the bolt R is drawn down, as above described, and the free end of said cord is also drawn down, lifting the caster M off from the floor, as shown by full lines in Fig. 2 and by dotted lines in Fig. 3. This pull draws the outer upright A^2 toward the inner upright A′, thereby contracting the door, which is shown in partly-contracted position in Fig. 2. Pressure on upright A^2 or a pull on it toward upright A′ will assist this operation, the toggle-levers yielding to permit the same.

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

1. In a door, screen or curtain, extensible at will, the combination of lock-bars for holding it thus extended with a bar to which the said lock-bars are connected, the said bar being provided with means for adjusting its width to regulate that of the extended door, and arranged approximately at right angles to said lock-bars when the latter are in locking position, substantially as set forth.

2. In a door, screen or curtain extensible at will, the combination of lock-bars for holding it thus extended with a bar to which the said lock-bars are connected, the said bar being arranged approximately at right angles to said lock-bars when the latter are in locking position, provided with means for varying the relative width of its upper and lower parts and thus fitting it to a doorway of unequal width at different points substantially as set forth.

3. In a door, screen or curtain extensible at will, the combination of lock-bars for holding it thus extended with a bar approximately at right angles to said lock-bars when the latter are in locking position and to which the said lock-bars are hinged and which serves for operating them, the said bar consisting of two parallel strips connected to each other by adjusting-screws and having blocks or pieces removably secured between them, in order that the width of the door may be varied equally or unequally at two or more points substantially as set forth.

4. In a door, screen or curtain, the combination of a flexible sheet, a spring-roll on which it winds and lazy-tong bars and uprights on

which it is mounted, with lock-bars for holding the same extended, an approximately vertical and vertically-moving bar to which the said lock-bars are hinged for operating the same and adjusting-screws and interposed blocks or pieces for regulating the interval between the separable strips composing said bar substantially as and for the purpose set forth.

5. In a door, screen or curtain, the combination of an extensible frame with lock-bars for holding the same extended, a movable bar to which the said lock-bars are attached, being approximately at right angles thereto when in locking position for operating the same, a flexible body under spring tension attached to and inclosing the said frame, a pulley on said frame and an operating-cord which passes over said pulley for convenience in raising the said movable bar and freeing the said lock-bars at will substantially as set forth.

6. In a door, screen or curtain, the combination of a flexible body under spring tension, an expansible frame including a strip or upright which divides it into two portions, lock-bars arranged in pairs in each portion to hold the door or door-section extended, two approximately vertical and vertically-movable bars arranged in the said sections respectively, each having two pairs of lock-bars hinged thereto and a cord connected to each of these movable bars and passing over a pulley or support in the interval between them, the said cord being also guided over a pulley on a part of the frame, and all the said pairs of lock-bars being unlocked simultaneously by a pull on the said rope substantially as set forth.

7. In a door, screen or curtain, the combination of a body of flexible material and an extensible frame for said body with hinged lock-bars arranged in pairs for holding the same extended, means for opening and closing the said bars and a device suspended from one of these lock-bars and a caster or roller on the lower part of said device arranged for contact with the floor when the lock-bars are in locking position, but to be lifted above the same when the lock-bars are moved out of said position to allow the contraction of the door substantially as set forth.

8. In a door, screen or curtain, the combination of a body of flexible material and an extensible frame therefor with means for holding the same extended at will including a hinged lock-bar, a depending bar hinged at its upper end to said lock-bar and adapted to be raised and lowered by the lifting and lowering thereof and a caster carried by said depending bar and arranged to run on the sill or floor substantially as set forth.

9. In a door, screen or curtain the combination of an extensible frame with means for holding it extended at will, said means including a part arranged to be lifted and lowered, a bar suspended from said part and a caster on the lower end of said bar arranged to be moved into or out of contact with the floor according to the position of said part substantially as set forth.

10. The combination of an extensible door-section with means, including a hinged bar, for locking it in extended position, a bar suspended from said moving bar, a caster on the lower end of the suspended bar and a block interposed between the hinged end of the first-mentioned bar and the upper end of the suspended bar, which is hinged to said block for the purpose set forth.

11. The combination of an extensible door-section with means for locking it in extended position, including a hinged bar, a block adjustably secured to the said bar at its hinged end, a bar hinged to said block and a caster carried by the latter bar for contact with the floor, the parts being arranged to bring the hinges of said bars and the said caster in alinement when the door is locked in extended position substantially as set forth.

12. In combination with an extensible door-section, means for locking it in extended position, including a movable bar, another bar suspended from the latter, a caster on said suspended bar and a device carried by said door bearing upward against the lintel of the doorway the said caster and device combining to lock the said section by upward and downward pressure on the proximate permanent surfaces substantially as set forth.

13. In combination with an extensible door-section, means for locking it in extended position, including a movable bar, another bar suspended from the latter, a caster carried by the said suspended bar, and a device carried by the upper part of said door and provided with a rubber or other compressible head arranged to bear against the lintel, the said caster and device combining, by upward and downward pressure against proximate surfaces, to lock the said door-section without indenting the same or requiring any change therein substantially as set forth.

14. In combination with an extensible door-section, lock-bars for holding it extended, a caster arranged to be forced against the floor by the movement of said bars into locking position, means for suspending the said caster from one of the said lock-bars, a device having a rubber or other compressible part arranged for contact with the lintel and means for forcing the said compressible part upward against said lintel and there holding it to lock the door by pressure in coöperation with the said caster substantially as set forth.

15. In combination with an extensible door-section, lock-bars for holding it in extended position, a bar carrying a caster suspended from said lock-bars and moved by the latter, as they take their locking position, to force the said caster against the floor, a bolt carried by the upper part of the said door and provided with a rubber head for bearing

against the lintel and means for pressing the said head into contact with said lintel and locking it there substantially as set forth.

16. In combination with an extensible door-section, lock-bars arranged in pairs for holding in extended position, a vertically-movable bar to which said lock-bars are hinged for operating the same, a suspended bar carried and operated by one of the said lock-bars, a caster on the lower end of said suspended bar, for contact with the floor, a bolt mounted on the upper part of the door and provided with a compressible head for contact with the lintel, and means for forcing the said bolt into such contact and locking it there substantially as set forth.

17. In combination with a door, a bolt provided with a compressible head, means for forcing the said head into contact with the lintel and locking it there, a caster arranged for contact with the floor and means for forcing it down on the floor, to coöperate with the said bolt in locking the said door by pressure and friction substantially as set forth.

18. In an extensible door, screen or curtain, a flexible spring-retracted body in combination with uprights and lazy-tong bars constituting its frame, lock-bars arranged to hold the same in extended position against the said spring retraction, vertically-movable bars to which the said lock-bars are hinged for opening and closing the same, a depending bar hinged to one of said lock-bars, a caster carried by the said depending bar for running on the floor, a cord connected to the said vertically-movable bars for freeing the said lock-bars and lifting the said caster by a pull from outside the covering of the said door, a soft-headed bolt carried by the said door and means for forcing the same up against the lintel and locking it there substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE J. RECORD.

Witnesses:
ALLEN M. COX,
ALICE G. STANLEY.