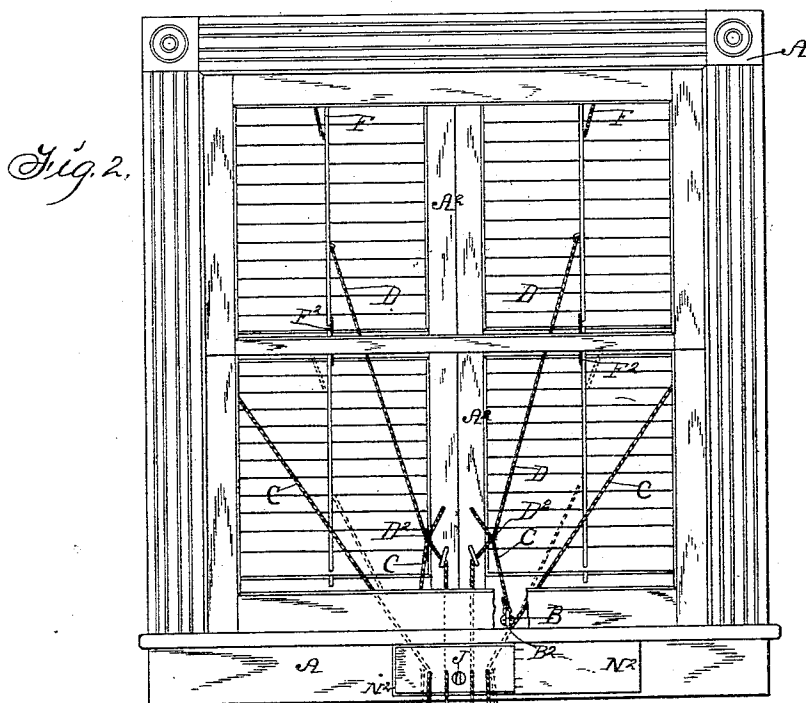
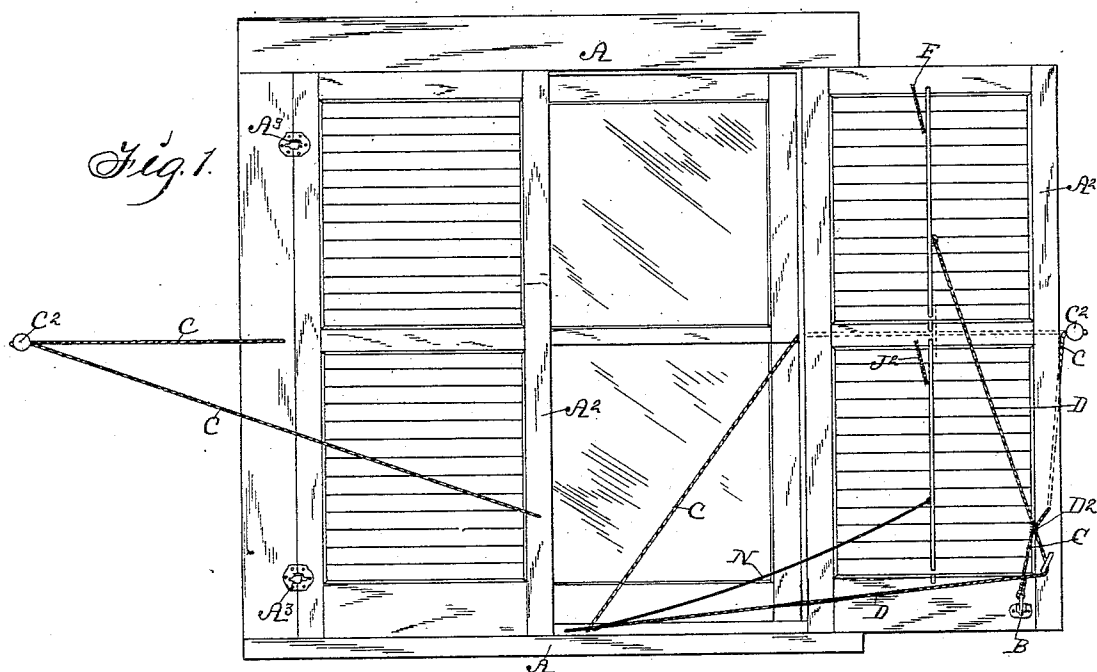


{No Model.}

D. F. GOODALL.
SHUTTER AND SLAT OPERATOR.

No. 504,575.

Patented Sept. 5, 1893.



Witnesses: }
W. Santley.
J. Ralph Orwig.

Inventor: Dennis F. Goodall.
By Thomas G. Orwig, Attorney.

UNITED STATES PATENT OFFICE.

DENNIS F. GOODALL, OF TORONTO, IOWA.

SHUTTER AND SLAT OPERATOR.

SPECIFICATION forming part of Letters Patent No. 504,575, dated September 5, 1893.

Application filed December 31, 1892. Serial No. 456,950. (No model.)

To all whom it may concern:

Be it known that I, DENNIS F. GOODALL, a citizen of the United States of America, residing at Toronto, in the county of Clinton and State of Iowa, have invented a new and useful Shutter-Opener and Window-Slat Adjuster, of which the following is a specification.

The object of my invention is primarily to provide cheap, simple, durable and positively operating mechanism whereby the shutter of a window may be opened or closed at will, and the slats thereof adjusted to any desirable angle by a person on the inside of the window frame, without raising the window.

To this end my invention consists in details of construction, arrangement and combination of parts relative to the shutters, slats, &c., as hereinafter more specifically set forth, pointed out in my claims and illustrated in the accompanying drawings, in which—

Figure 1 is an outside elevation of a window frame with shutters therein provided with my improved shutter opening device and slat adjuster, showing one shutter in an open position. Fig. 2 is an inside view of a window frame having shutters provided with my improvements and in a closed position.

Referring to the accompanying drawings the reference letter A is used to designate the window frame. A² are shutters of the ordinary construction hinged to the outside of the window frame by means of the usual shutter hinges A³, and said shutters have the upper and under sets of slats A⁴ placed therein.

B designates a gravity hook attached to the inner lower corner of the shutter to pass over the projection B² fixed to the bottom of the window frame. Means are provided whereby this gravity hook may be elevated and the shutter opened as follows: C designates a cord or wire attached to the said gravity hook extended upwardly a short distance, then outwardly through the shutter, thence laterally to a pulley C² mounted in a support at the side of the window beyond the edge of the shutter when in an open position. The cord or wire C is then extended backwardly through a bore in the side of the window frame to a point inside of the shutter and finally through a bore in the base of the window frame. It will now be obvious that a pull upon the cord or wire C will first elevate the gravity hook

B out of engagement with the projection B² and a further pull thereupon will open the shutters.

D designates a cord or wire for closing the shutter and at the same time opening both the upper and lower sets of slats and is arranged as follows: Its upper end is attached to the connecting rod of the upper set of slats extended from thence downwardly to that portion of the cord or wire C which is on the inside of the shutter at the point D², thence through a metal loop D³ fixed to the shutter and finally extended through a bore in the bottom of the window frame. Assuming that the shutter is open a pull upon this cord or rope D will have the following effect: First a sufficient portion of the cord or wire C will be pulled through the bore in the shutter to allow the gravity pawl a free movement. Then the slats will be opened and any further power applied thereto will tend to close the shutter. This it will be seen leaves the slats in an open position. To close them I have provided a spring F attached to the shutter and to the connecting rod of the slats to normally exert its power in an upward direction, so that when the tension upon the cord or rope D is relaxed the slats will automatically close themselves. The upper and lower sets of slats may be connected to operate isochronously by means of a link F² connecting the operating rods of each set of slats. To set the slats at any desirable angle I provide a slotted pin J through which the cord or wire may be extended and held taut. If it is desirable to operate the upper and lower sets independently the link J may be dispensed with, a spring J² attached to the operating rod of the lower set of slats and a cord or wire N attached to the said operating rod and extended through a bore in the bottom of the window frame. The ends of their various cords or wires are extended through a box N² on the inner side of the window frame so that when not in use they may be folded in said box and the same covered.

Having thus described the device, what I claim as my invention, and desire to secure by Letters Patent of the United States therefor, is—

1. In combination with a window frame the following elements, to wit: a shutter hinged

to the window frame to swing outwardly, a gravity hook on the inner face of the shutter, a projection secured to the window frame and adapted to be engaged by said gravity hook
 5 as set forth, and a cord or its equivalent, fixed to the said gravity hook extended from thence outwardly through a bore in the shutter thence around a pulley or its equivalent located at the side of the shutter, and finally
 10 to a point inside of the window frame, for the purposes stated.

2. In combination with a window frame the following elements, to wit: a shutter hinged to the window frame to swing outwardly a
 15 gravity hook on the inner face of the shutter, a projection secured to the window frame and adapted to be engaged by said gravity hook as set forth, a cord fixed to said gravity hook extended from thence outwardly through a
 20 bore in the shutter, thence around a pulley or its equivalent located at the side of the shutter and finally to a point inside of the shutter extended through a metal loop secured to the shutter and thence to a point inside of
 25 the window frame for the purposes stated.

3. A shutter having pivoted slats connected by means of a suitable connecting rod, a coil spring attached to said rod and to the shutter proper to normally retain the slats closed, a
 30 cord attached to said connecting rod and extended downwardly through a metal loop attached to the shutter and finally extended to

a point inside of the window frame substantially as and for the purposes stated.

4. In combination with a window frame the
 35 following elements, to wit: a shutter hinged to a window frame to swing outwardly a gravity hook on the inner face of the shutter, a projection secured to the window frame and adapted to be engaged by said gravity hook as
 40 set forth, a cord fixed to said gravity hook, extended from thence outwardly through a bore in the shutter, thence around a pulley or its equivalent located at the side of the shutter and finally to a point inside of the window
 45 frame, an upper and lower set of slats in said shutter, rods connecting each set of slats, a link connecting the upper and lower rods as set forth a coil spring attached to the said upper rod and to the shutter proper for the
 50 purposes stated, a cord attached to one of said rods and to the aforesaid cord at a point inside of the shutter extended from thence through a metal loop secured to the shutter and finally extended through the base of the
 55 window frame and a box in said frame adapted to contain the ends of said cords all arranged and combined substantially in the manner set forth for the purposes stated.

DENNIS F. GOODALL.

Witnesses:

CHARLES GOODALL,
 E. HART, Jr.