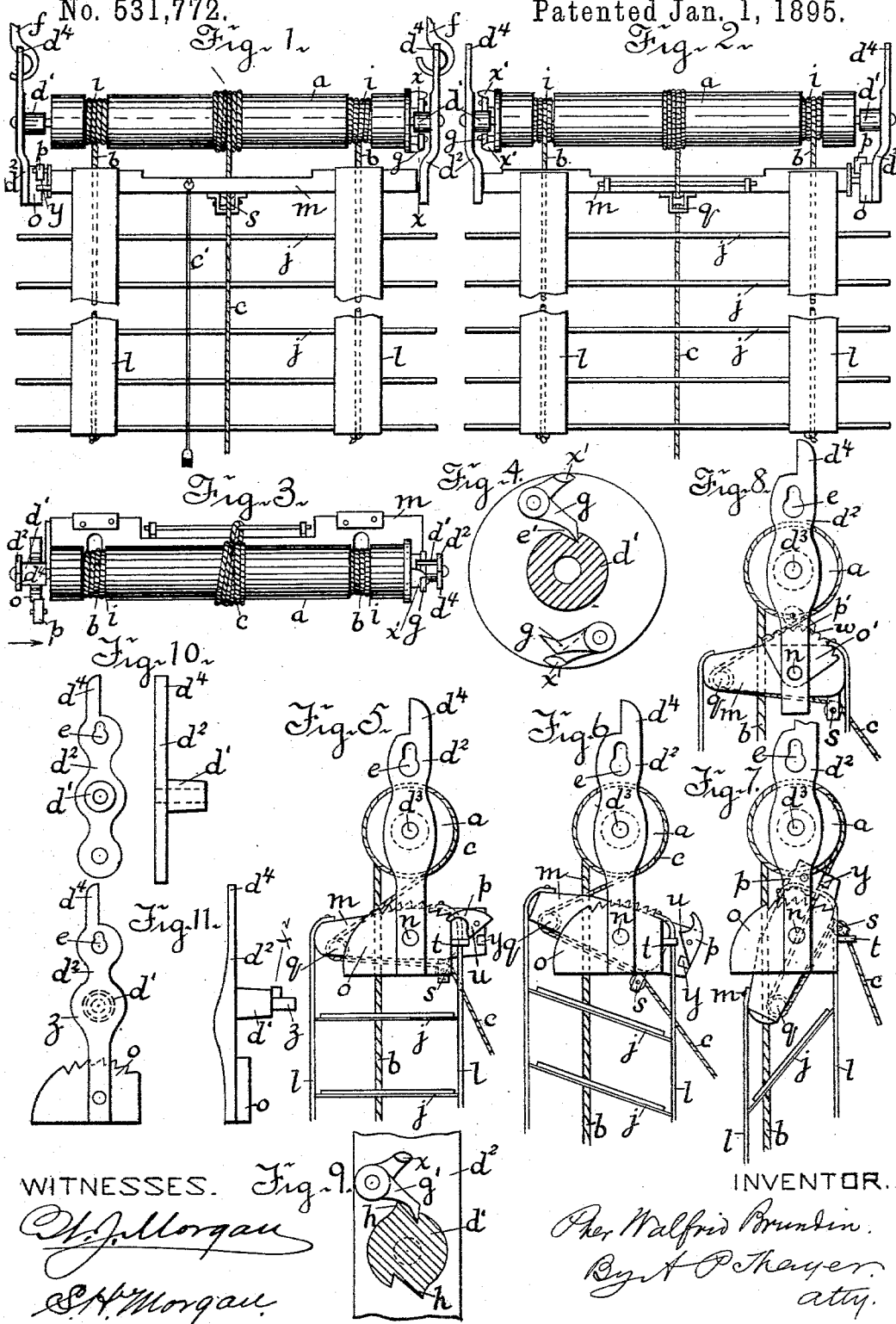


(No Model.)

P. W. BRUNDIN.
VENETIAN BLIND.

No. 531,772.

Patented Jan. 1, 1895.



WITNESSES. *Ch. J. Morgan*
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UNITED STATES PATENT OFFICE.

PHER WALFRID BRUNDIN, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF
TO EMIL TORNBLOM, OF SAME PLACE.

VENETIAN BLIND.

SPECIFICATION forming part of Letters Patent No. 531,772, dated January 1, 1895.

Application filed February 28, 1894. Serial No. 501,894. (No model.)

To all whom it may concern:

Be it known that I, PHER WALFRID BRUNDIN, a subject of the King of Sweden and Norway, and a resident of New York city, in the county and State of New York, have invented certain new and useful Improvements in Venetian Blinds, of which the following is a specification.

My invention consists of improvements in Venetian blind apparatus whereby a cord and roller for raising and lowering the slats, and a stop device for holding the slats in position may be utilized to better advantage than as at present arranged.

It also consists of improved rocking bar apparatus for opening and closing the slats, and it also consists of certain improvements in details of the apparatus all as hereinafter fully described, reference being made to the accompanying drawings, in which—

Figure 1, is a front elevation of part of a Venetian blind with my improved apparatus for operating it, the slats being open. Fig. 2, is an elevation of the same in the reverse view. Fig. 3, is a plan view. Fig. 4, is a detail in vertical section on line $x-x$, Fig. 1, through the roller pivot bearing at the right hand end of the roller on a larger scale. Fig. 5, is a side view looking in the direction of the arrow at the left hand of Fig. 3, and showing the slats open. Fig. 6, is a similar view showing the positions when the blind is to be raised or lowered, or the slats are to be opened or closed. Fig. 7, is also a similar view showing the conditions when the slats are closed. Fig. 8, is also a similar view showing a modified arrangement of the apparatus for opening and closing the slats. Fig. 9, is a detail showing a modification of the roll catch device. Fig. 10, represents a front and side view of the hanger for one end of the roller, and the rocking bar. Fig. 11, represents a front and side view of the hanger for the other end of the roller and rocking bar.

I provide a roll a , for raising and lowering the slats j by the cords b , and a cord c , for turning the roll to wind up the said cords b which are arranged with the slats as usual to raise them, said roll being pivoted at d^3 in hangers d^2 , which are detachably connected

by the eyes e , on suspending hooks f , pendent from the top of the window frame, or otherwise suitably arranged for readily applying and removing said hangers, and the cord c , being wound on the roll reversely to the winding of cords b thereon. The hangers have a prong d^4 projecting upward and bearing against the hooks to prevent the hangers from swinging out of position by the effect of jerks on the cord c . In the upper side of the stationary pivot hub d^7 of one of the hangers is a notch e' and on the end of the roll is one or more gravitating pawls g , to drop in said notch when the roll turns slowly and prevent further descent of the said cords b' . When the roll is allowed to turn quickly by the unwinding of the cords b , the pawl or pawls pass the notch too quickly to fall in and thus permit the blinds to be lowered to any desired extent. The studs x' limit the outward thrust of the pawls by centrifugal force when the roll runs rapidly while lowering the slats. The roll is preferably grooved as at i , where the cords b wind on it. A spur x^2 Fig. 11, may serve instead of a notch to engage the pawls.

The weight of the slats turns the roller to unwind cords b . The cord c is a regulator controlling the action of the stop device (pawl or pawls) by allowing the roller to turn quickly or slowly as it is controlled by the operator. It will be seen that by the use of the gravitating pawl or pawls to stop and hold the roller an especial advantage is secured as compared with stop devices of the roller which require to be specially manipulated for actuating the stop.

For shifting the slats j of the blinds to open and close them I attach the slat suspending straps l to the edges of the rocking bar m respectively, which bar is pivoted at n , eccentrically to its longitudinal axis, in the hangers d^2 , below the roll so that when the bar is free to turn on its pivots the greater leverage of the weight hanging from one edge will cause it and the slats to turn and set obliquely as in Fig. 7, for closing the slats and shutting out the light. A toothed rack o , is secured to the hanger and a pawl p is attached to the bar m , in such relation to the rack that it will

catch in the rack and hold the slats open or partly open according as the pawl engages along the notches of the rack.

A cord as *c'* Fig. 1, may be attached to the bar *m*, on the side of its shortest radius for turning it and the slats to open them by pulling downward on the cord, but I can utilize the same cord for this purpose, which is used for operating the roll, and therefore I arrange the cord *c*, to pass from said roll over the guide pulley *q*, on the edge of the longest radius of the bar *m*, and thence under bar *m* and over another guide pulley *s*, at the other edge from which it hangs to be pulled for both purposes.

A sharp pull on the cord *c*, will turn the bar *m*, and open the slats when they will be secured in the open position by pawl *p*, dropping into one of the notches of the rack *o*. By further pulling on the cord *c*, the roll will be turned for raising the slats.

To release the slat opening and closing rocking bar from the rack and pawl, a stud *t* is arranged to project from the end of rack plate *o*, so that when the bar is pulled back sharply a little beyond the level position, the heel *u* of the pawl will strike said stud, and the pawl will be swung so far over on its pivot that it will fail to engage the rack during the reverse movement of the bar, when the reverse movement is not checked by a pull on the cord. The bar is to be so checked when the slats are to be set partly open. The spur *y*, projecting from the end of the rocking bar prevents pawl *p*, from being thrown too far over by the stud *t*.

The toothed rack may be attached to the rocking bar as *o'* Fig. 8, and the pawl *p'* may be pivoted on the hanger *d'*. In this case the teeth of the rack will be made with inclined points *w*, tending to throw the pawl up and cause it to escape the notches under quick motion of the rack. The pawl and the notched hub for controlling the roll *a*, may also be modified as in Fig. 9, in which the hub is attached to the roll, and the pawl *g'* is pivoted to the hanger.

To facilitate the escape of the pawl over the notches under comparatively slow speed I have provided the spur *h*, in advance of the notches to thrust the pawl upward and cause it to make longer jumps over the notch, said spur being suitably curved to allow the pawl to ride over without obstruction.

The hangers consist of a short bar or plate having the eye for receiving the hook, and the steadying prong *d'* at the upper end, also having the pivot hub at the middle, and also having the hole near the lower end for the rocking pivot *n*. The hub may either be perforated for receiving the roller pivot as represented in most of the figures, or it may have a pivot stud *z* Fig. 11, to enter a pivot hole in the end of the roller. The plate of the toothed rack *o*, may be made separately and be attached to one of the hangers as indicated in Figs. 5, 6 and 7 or those hangers to which a

rack is to be applied may be made integral with the rack as shown in Fig. 11.

I claim—

1. In Venetian blind operating apparatus a pivot stud and a ratchet in combination with a roll having one or more gravitating pawls, slats suspended from said roll and a cord for turning said roll, the said combination including but a single roll whereto all the other elements are connected substantially as described.

2. In a Venetian blind the combination of the eccentrically separately pivoted rocking bar with the slats and the straps connecting said rocking bar and slats, the hangers, the pivot studs attached to the rocking bar and turning in the hangers, and means to raise and lower the slats substantially as described.

3. In a Venetian blind, the combination of the eccentrically pivoted rocking bar, with the slats and straps connecting said rocking bar and slats, a cord for operating the rocking bar, the automatic ratchet and pawl for controlling the rocking bar, and the spur for raising the said rocking bar controlling pawl substantially as described.

4. The roller having a pivot turning in the bored and notched hub rigidly attached to the hanger, and the pawls pivoted on the end of the roller substantially as described.

5. In Venetian blind operating apparatus a pivot stud and a ratchet in combination with a roll having one or more gravitating pawls, slats suspended from the roll and a cord for turning the roll the rocking bar, its rack mechanism and means for operating said bar substantially as described.

6. In Venetian blind operating apparatus the combination of the roller, the slats suspended from the roller, an automatic stop device for the roller consisting of a notched hub and gravitating pawl a cord for both operating the roller and regulating the stop device and the rocking bar, its rack mechanism and means for operating said bar substantially as described.

7. The combination of the roll, a notched hub and gravitating pawl stop devices, and a cord for turning it, with the slats, the rocking bar from which the slats are suspended, and the slat raising and lowering cords, said cords and the cord for turning the roll being respectively wound on the roll reversely, said cord for turning the roll also serving to operate the rocking bar substantially as described.

8. The combination of the roll, a notched hub and gravitating pawl stop devices, and a cord for turning the roll, with the slats, the rocking bar from which the slats are suspended, said bar mounted eccentrically to its longitudinal axis, and the slat raising and lowering cords, said cords and the cord for turning the roll being respectively wound on the roll reversely substantially as described.

9. The combination of the roll a notched hub and gravitating pawl stop devices, and a cord for turning the roll, with the slats, the

rocking bar having a toothed rack, and the
slat raising and lowering cords, said cords
and the end for turning the roll being re-
spectively wound on the roll reversely sub-
stantially as described.

10. The combination of the roll, a notched
hub and gravitating pawl stop devices, and a
cord for turning the roll, with the slats, the
rocking bar from which the slats are sus-
pended and the slat raising and lowering
cords, said cords and the cord for turning the
roll being respectively wound on the roll re-
versely and the cord for turning the roll ex-
tended around the rocking bar for turning it,
substantially as described.

11. The combination of the roll, a notched
hub and gravitating pawl stop devices, and a
cord for turning the roll with the slats, the
rocking bar from which the slats are sus-
pended and which is pivoted eccentrically to
its longitudinal axis, the rack and pawl stop
devices for said bar, and means for rocking
the bar to open and close the slats substan-
tially as described.

12. The combination of the roll, a notched
hub and gravitating pawl stop devices and a
cord for turning the roll, with the slats, the
rocking bar from which the slats are sus-
pended, and which is pivoted eccentrically to

its longitudinal axis, and the rack and pawl
stop device for said bar, said cord for turning
the roll being extended around the rocking
bar for actuating it substantially as described.

13. The combination of the roll, a notched
hub and gravitating pawl stop devices and a
cord for turning the roll, with the slats, the
rocking bar from which the slats are sus-
pended, and which is pivoted eccentrically to
its longitudinal axis, the rack and pawl stop
device for said bar, the stud for raising the
pawl out of the rack and the spur for termi-
nating the throw of the pawl by said stud
substantially as described.

14. The combination of the hanger suspend-
ing hooks, the roll suspended by hangers, the
roll pivoted in said hangers, slats suspended
from the roll and the prongs of the hangers
above the eyes of the hangers and bearing
against the sides of the hooks to prevent
swinging of the hangers by jerks of the roll
turning cord substantially as described.

Signed at New York city, in the county
and State of New York, this 19th day of Jan-
uary, A. D. 1894.

PHER WALFRID BRUNDIN.

Witnesses:

W. J. MORGAN,
S. H. MORGAN.