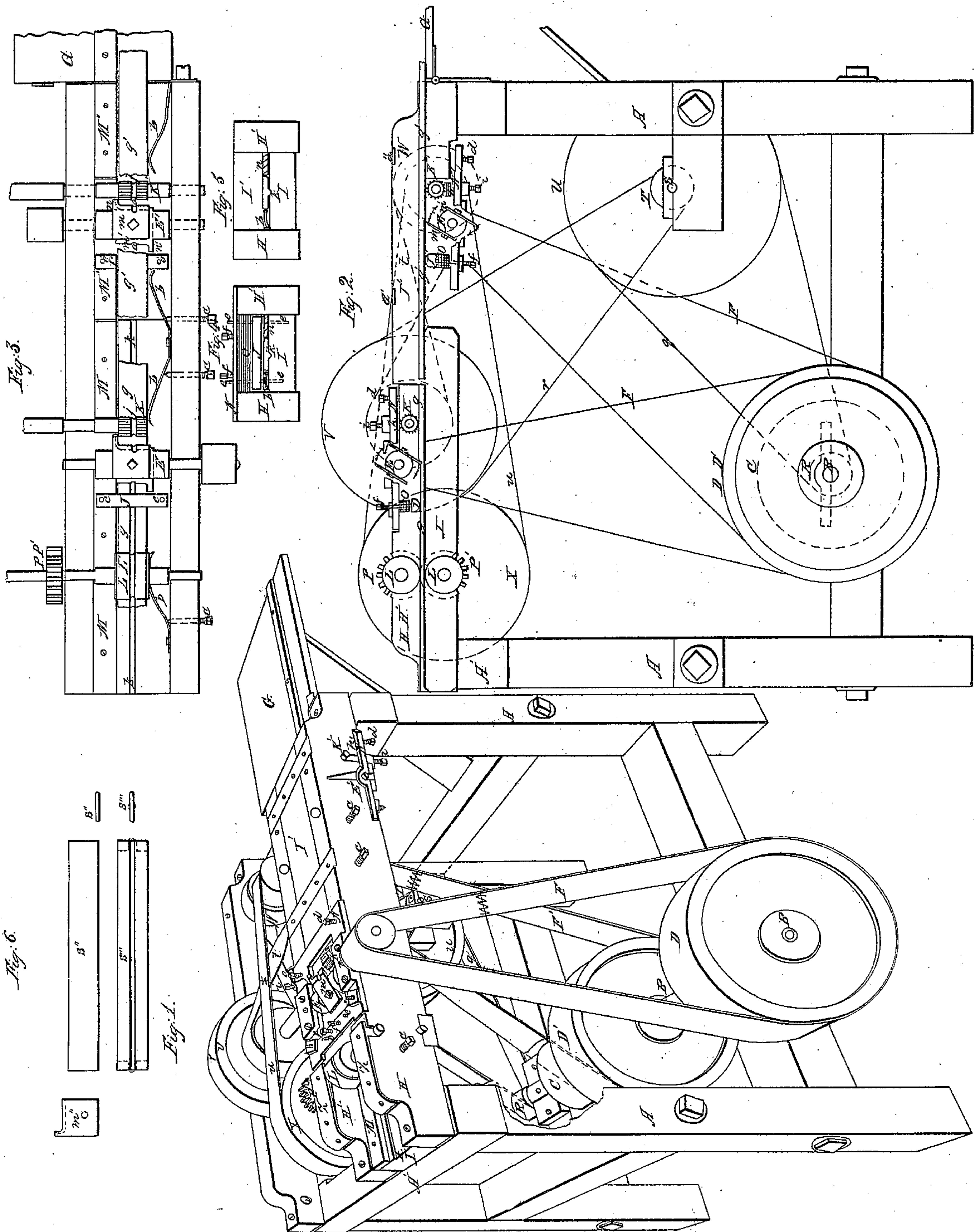


*Carlisle & Worcester,  
Sash & Blind Machine.*

No. 19.619.

*Patented Mar. 16, 1858.*



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# UNITED STATES PATENT OFFICE.

CHARLES CARLISLE AND LEONARD WORCESTER, OF WOODSTOCK, VERMONT.

## MACHINE FOR PLANING BLIND-SLATS.

Specification of Letters Patent No. 19,619, dated March 16, 1858.

*To all whom it may concern:*

Be it known that we, CHARLES CARLISLE and LEONARD WORCESTER, of Woodstock, in the county of Windsor and State of Vermont, have invented new and useful Improvement on Machines for Planing Blind-Shades; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view; Fig. 2 a longitudinal elevation; Fig. 3 a horizontal projection or plan of the most essential parts of the machine; Figs. 4 and 5 transverse sections of that part of the machine which is projected in Fig. 3; and Fig. 6 presents diagrams of blind shades, and a planing knife.

Like letters refer to the same parts in all the sections of the drawings.

In Figs. 1 and 2, A, A, A', is a frame of wood; B, B, a main shaft receiving motion from any suitable power, as by a belt passing around a pulley C, on the main shaft; D, D', are two driving pulleys, giving rapid motion to two planing cylinders E E', by the belts F, F'. G is a table, for the convenient feeding of the machine, which table is hinged to the frame and may be let down, and thus render the machine more compact when not in operation. The lumber to be finished, is first sawed into suitable strips, and is fed into the machine, one piece at a time, by an attendant at the table G; thence they are carried forward by a feed motion hereafter described, over the cylinder E', and under the cylinder E, and pass out of the machine in the form represented by the diagrams s''', s''' Fig. 6. H H' I I' is a forming box which we denominate the matrice; and inasmuch as its construction, and adaptation to, and combination with the planing cylinders and feed motion, present all the features of our improvements which we claim as new: our specification will be principally confined to the matrice, specifying in due time, more distinctly, the several parts, which when combined, form the matrice. The matrice is constructed with two side pieces H H', Figs. 1 and 2, a bottom or bed I, and an inverted bed I'. The bed I extends entire through the whole

length of the matrice, except a space J' K', 55 Fig. 2, occupied by the cylinder E', and a smaller space occupied by the roll L', hereafter described. The side pieces H H', Figs. 1 and 2, and the bed I, are made of one entire piece of metal or wood, or otherwise, 60 are firmly and permanently united together. The top or inverted bed I' extends through about half the length of the matrice, as seen in Fig. 2, and is adjusted and supported in place, by two transverse metallic plates 65 (a'' a''), Figs. 1 and 2, which are screwed, or bolted to the side pieces H H'. The inverted bed I' is thus arranged, that it may be readily adjusted, or taken out, as occasion may require, to examine or repair the 70 machinery lying under it.

M M' M'', Figs. 1 and 3, is a guide or rest extending the whole length of the matrice; but is made in sections; the sections M M' being attached to the bed I, while the section M'' is attached to the inverted bed I'. 75 In Fig. 3, (b b b b) are springs pressing the work against the rest M, M', and (c c c) are set screws for regulating the tension of the springs. 80

N N' Figs. 1 and 2, are two metallic tilting frames, precisely alike, bolted to the side pieces of the matrice, and tilted more or less as occasion may require, by means of the set screws (d d d d). At the left hand of 85 the cylinders E E', over the frame N', and under the frame N, Figs 2 and 1, are pressure bars J J', Figs. 2 and 3, supported on guide rods (e e e' e'), Figs. 2 and 4.

Fig. 4 is a transverse section of the matrice, showing the guide rods (e e). Between the pressure bar J, and frame N, Fig. 4, is a packing of India rubber or other elastic substance, O, operating as a spring, whose tension is regulated by the set screws (f f). 95 The imposing surface of the pressure bars J J', Fig. 2, is rounded and polished, and is also grooved to fit the finished surface of the shade, as seen in Fig. 4.

K K' are two sharp fluted feed rolls, 100 pressing upon the unfinished surface of the shades, (g g'), Figs. 2 and 3. Between the journals of the feed rolls and the frames N, N', is an India rubber packing, or other elastic substance, (h h') Fig. 2, and (h') 105 Fig. 1, whose tension is regulated by set screws (i i'). A pressure of the feed rolls sufficient to move the work forward, scores



the wood somewhat, and thus facilitates the planing; but to prevent scoring and marring the middle portion of the shade forming the bead, grooves (*j j*) Fig. 3, are formed in the rolls, sufficient at least to remove the teeth or sharp edges in the middle portion of the roll.

*L L'*, Figs. 1, 2, 3, are two delivering rolls, grooved in manner and position corresponding with the pressure bars and feed rolls, and covered with leather or other elastic substance, to prevent the marring of the finished shades which pass between them. They are connected together by gearing *P P'*, and the lower roll *L'* occupies a cavity cut in the bed *I*.

The elastic rolls *L L'*, are an essential feature in the machine; for when the shade (*g*) has passed the roll *K*, it must still be firmly held and fed forward to complete the planing. This can not be done by the pressure bar *J*, nor by the substitution in lieu of the bar of a smooth pressure roll; nor will the use of a pair of smooth rolls, compressing the finished work, as is the case in the Woodworth and many other planing machines, answer the purpose for such thin work as blind shades; it being essential to a good finish, that the shade be supported under the planing cylinder, by a plane unyielding bed. All that portion of the bed *I*, at the left hand of the cylinder *E'*, Figs. 2 and 3, is grooved to receive the bead of the under finished surface of the shade; but in the inverted bed *I'*, resting on, or being in contact with the unfinished surface of the shade, no corresponding groove is necessary.

Fig. 5 is a transverse section of the matrice embracing the two beds *I I'*, and (*h*) in the several figures, represents the groove. Taking now in connection the feed rolls *K K'*, the pressure bars *J J'* the revolving planing knives (*m m'*) hereafter described, and the elastic rolls *L L'*; a matrix or gang is formed, of which (*l*) Fig. 4, is a transverse section, corresponding with a transverse section of the shade *s'''* Fig. 6. But for the sake of clearness and precision in our specification, and as preparatory to the true understanding of our claim, the two side pieces *H H'*, the beds *I I'*, the fluted rolls *K K'*, the pressure bars *J J'*, the elastic rolls *L L'*, and the rest *M M''*, are, as a whole, denominated the matrice; always omitting as component parts of the matrice proper, all other parts of the apparatus, not here distinctly named as component parts.

The planing cylinders are hung in two tilting frames *N N'*, Figs. 1 and 2, which are bolted to the side pieces of the matrice, and rest on the same, and set screws (*d d*), by which the cylinders can be adjusted to the required thickness of the work with facility and despatch. The form of the cylinders *E E'*, the planing knives (*m m'*),

and their connection with each other and the tilting frames, is apparent from the several figures of the drawings. Each of the cylinders as *E'* Fig. 3, has two knives (*m m'*), the cutting edges of which have each a niche or concavity (*a*) corresponding in counterpart to the required bead of the shade; and also a projection (*n n'*) curved so as to correspond with the rounded edges of the shade. For the convenience of grinding, and setting the knives to different widths of shades, each knife has but one projection; but each pair of knives, having their projections on opposite sides, will dress the shade on one side, and on its two edges, up to one half of the thickness of the shade.

(*g g'*) Figs. 2 and 3, are shades and sections of shades, passing over the cylinder *E'* and under the cylinder *E*, in the process of being finished. In constructing the knife (*m'*) Fig. 3, care must be taken that the projection (*n'*) be of sufficient length to cut through the entire thickness of the stuff (*g'*), and thus reduce it to a uniform width. The other projections of the knives may be shorter, and only sufficient to finish one half of the edges of the shade as before described.

The shades thus far referred to, and of which (*s''' s'''*) Fig. 6, are diagrams, are called the rolling or beaded shades, and are designed for Venetian blinds. Round tenons or pins on the ends of the shades are formed by other machinery not here described: Nevertheless our machine is equally well adapted for the planing of common or plane shades, of which (*s'' s''*) are diagrams, by merely substituting knives of the form (*m''*). Fig. 6, without a niche or concavity in their cutting edges.

Motion is given to the feeding apparatus as follows: The shafts of the two feed rolls *K K'* and the elastic roll *L'*, extend back to the plate *Q*, of the frame work, seen in Fig. 1. Between the plate *Q* Fig. 1, which supports the rear end of the shafts, and the matrice *H' I'*, the above shafts are supplied with the necessary pulleys. From a small pulley *R* on the rear end of the main shaft *B B*, Figs. 1 and 2, motion is communicated to a counter, or diminishing shaft and pulleys *S T U*, by a belt (*q*); thence to the feed roll *K*, by the belt (*r*) and pulley *V*; thence to the feed roll *K'*, by the cross belt (*t*) and pulley *W*; thence to the elastic roll *L'*, by the belt (*v*), and pulley *X*. The revolutions of the planing cylinders should be at the rate of 6000 per minute, and should make 50 cuts on every longitudinal inch of the shade. They should revolve in the direction indicated by the arrows in Fig. 2; and if the stuff be very cross grained, it should be fed in, the right side up, or with the grain running in the direction of the lines (*g' g'*). In ordinary stuff, no care in arranging the grain is necessary.



To the description of the elastic rolls L L', it should be added that the bearings of the roll L' Fig. 1, are yielding, having the upper halves of their journal boxes attached to  
5 springs, Z Z'.

Having thus fully described our improvements on a machine for planing blind shades; we would have it understood that we do not claim, as separately considered, or  
10 as existing in any old combinations, the planing cylinders and knives, the feed rolls and pressure bars, or any other device herein described. In other words, we disclaim all

old devices and combinations described in the foregoing specification. But

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What we do claim as our invention and desire to secure by Letters Patent, is,

The arrangement of the several separate devices, as shown and described, and for the purposes set forth.

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