

N^o 9,516.

Fig. 4B, b.

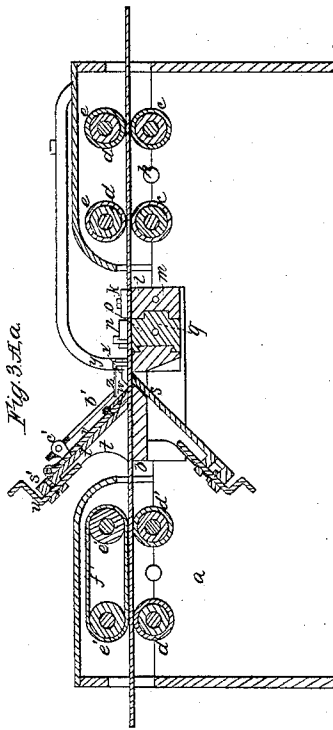


Fig. 3. A, a.

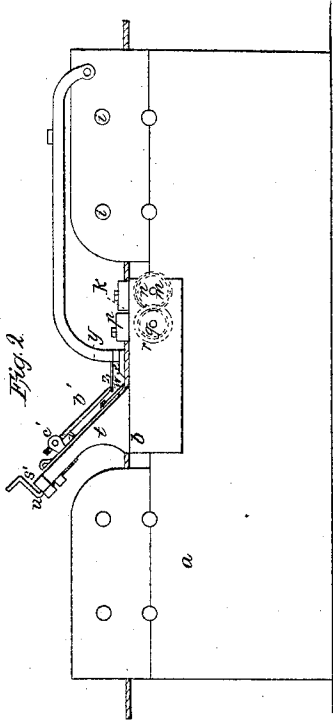


Fig. 2.

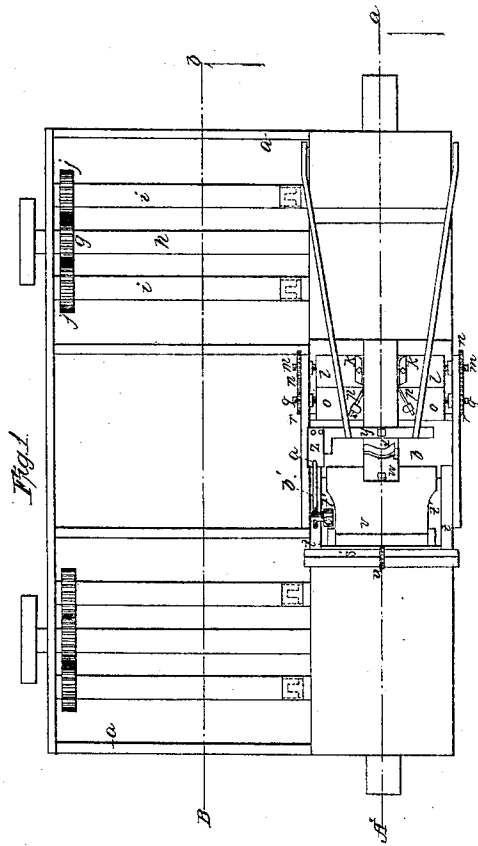


Fig. 1.

UNITED STATES PATENT OFFICE.

JOHN D. DALE, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR PLANING MOLDINGS.

Specification of Letters Patent No. 9,516, dated January 4, 1853.

To all whom it may concern:

Be it known that I, JOHN D. DALE, of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Machinery for Planing Moldings, and that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, is a plan; Fig. 2, a side elevation; Figs. 3 and 4, longitudinal vertical sections taken at the lines A—a and B—b of Fig. 1.

The same letters indicate like parts in all the figures.

In my said improved machine the planing is effected by one planing iron which during the passage of the wood under it is fixed, for each successive operation is moved nearer to the bed so as to produce the molding by successive operations.

The nature of the first part of my invention consists in attaching the planing iron to a hinged sliding adjustable stock, so that the plate to which the planing iron is attached can be turned up to sharpen the planing iron without detaching it and can be set for each succeeding cut by an adjusting screw.

The second part of my invention consists in so connecting by mechanical movement the sliding adjustable plane iron with a movable mouthpiece to make pressure on the surface to be planed, directly in front of the plane iron and of corresponding form, that as the plane iron is adjusted for each succeeding shaving the said mouth-piece shall receive a corresponding adjustment by a differential movement being imparted to it that the relative positions of the two may be proportional to the thickness of the shaving to be cut.

In the accompanying drawings *a* represents the frame and *b* the fixed bed on which the lumber to be planed is made to pass as it is fed in between two sets of rollers *c, c*, and *d, d*, the lower set *c, c*, working in fixed bearings, and the upper set *d, d*, in adjustable bearings kept down by weighted levers or their equivalents in the usual manner.

The upper set of rollers *d, d*, may be covered or surrounded with india-rubber *e, e*, or other elastic substance to insure a firm and constant bite and to prevent slipping, as it is important in planing with what are

termed line cutters that the feed should be constant and without jerks. The lower set of rollers are provided each with a cog wheel *f*, and the two engage an intermediate wheel *g*, on a driving shaft *h*, and the upper rollers are connected with joint couplings with two shafts *i, i*, that receive motions by cog-wheels *j, j*, from the wheels of the two lower rollers. The levers for making pressure on the upper rollers are not represented, as the method of doing this is well known and makes no part of my invention.

As the lumber is forced forward by the feed rollers it first passes between two plates *k, k*, one on each edge, which make pressure on the edges of the lumber, and constitute what are termed throats to hold the lumber and break the shavings as the plane irons remove the surplus material.

The inner faces of these are a little inclined inward, so as to make the pressure on the wood just in front of the cutting edges. Each one of these throat pieces is attached to a block *l*, which is adapted to slide horizontally by means of a screw *m*, that carries a cog-wheel *n* on its outer end, so that when these two screws are turned, the throat pieces are moved inward or outward to set them to different widths of lumber.

The two throat pieces are mounted alike and therefore the description of one will suit the other.

Just back of the two blocks *l, l*, are two other like blocks *o, o*, mounted and operated in like manner, and these carry each a plane iron *p* adapted to shave or plane the edges of the lumber. These plane irons are placed with their cutting edges just far enough back of the throat pieces to leave a free passage of the shavings. The screw shaft *q* that carries these blocks *o, o*, are geared with the other screw shafts of the blocks that carry the throat pieces by a cog-wheel *r*, which is a little less in diameter than the wheel on the shaft that operates the throat piece, so that when the plane irons and throat-pieces are set to take the first shaving the throat piece shall be further out than the plane iron by the thickness of the thick shaving to be cut, and as the two are moved in for each succeeding cut, the throat-piece gains on the plane iron to adapt the relative position of the two to the gradually reduced thickness of the shavings as the work progresses to the last

finishing shaving. After passing the plane
irons above described, the lumber passes
over a plane iron *S*, fitted to the bed *b* of
the machine simply to smooth the under
5 surface. A frame *s* is mounted on the bed
with sufficient space between its standards
for the passage of the lumber. These stand-
ards *t*, *t*, are inclined backward and form
ways in which slides a plate *t* governed by
10 a set screw *u*, by means of which the said
plate can be forced down toward or drawn
up from the bed. To the upper and front
edge of this said plate is hinged a plane
stock *v*, to which the plane iron *w* is se-
15 cured in the usual way.

The plane iron has its edge made of a
form the reverse of the molding to be pro-
duced. From this it will be seen that the
plane iron can be adjusted readily to any
20 required distance from the bed, and that
by reason of the hinged connection the
plane iron can be thrown up to admit of
sharpening without removing it from the
machine. Immediately in front of the
25 plane iron *w*, there is a pressure block (*x*)
whose back edge and under face are formed
the reverse of the intended molding. This
pressure block is attached to a frame *y*,
united to the main frame *i*, and at the side
30 of pressure block the said frame is provided
with a spring *z* formed with a socket *a'* to
receive the end of a set screw *b'* tapped in
a bracket *c'*, jointed to the sliding plate
that carries the plane stock. From this it
35 will be seen that by means of the screw *b'*
the distance of the pressure block from the
bed can be adjusted relatively to the plane
iron, and that being once set as the plane
iron is drawn farther from the bed, the
40 back edge of the pressure block will receive
from the cutter edge in the same proportion
so as to have these two always correspond
in their distance relatively to the thickness
of shaving to be removed, so that the said
45 pressure block will answer the effective pur-
pose of a mouth piece to break the shaving,
while by its spring connection it will yield
to any inequality in the thickness of the
lumber, the distance between the two al-
50 ways varying in proportion to the extent
of the yielding of the spring to suit the
thickness of the shavings.

As the pressure block and the cutting
edge of the plane iron are in form the re-
55 verse of the molding to be produced, it will

follow that at the first cut the most promi-
nent parts only will act, and for each suc-
ceeding cut a greater proportion will act
until the entire figure is produced.

Back of the bed there are two other sets 60
of rollers *d'*, *d'*, and *e'*, *e'*, like the front
rollers above described, and operated in like
manner, but instead of each one of the
upper rollers being covered with an elastic
substance, I employ a belt *f'* of vulcanized 65
india-rubber or other elastic substance
which passes around the two upper rollers,
and therefore interposed between the roll-
ers and the planed surface of the molding
to avoid injury to such planed irregular 70
surface. I generally make the elastic belt
of sufficient thickness to yield to the curved
and angular surface of the molding, and
thus take the requisite bite of the wood to
feed it through after the lumber has passed 75
from under the feeding rollers.

I do not wish to limit myself to the num-
ber of knives or rollers to be used, nor to the
manner of operating the rollers, as these
may be varied at pleasure. And I wish it 80
to be understood that I do not wish to limit
myself to the use of all my improvements in
one machine, although the best results will
be produced by the employment of all of
them. 85

What I claim as my invention, and de-
sire to secure by Letters Patent, is—

1. Attaching the planing iron to a plane
stock which is hinged to an adjustable slid-
ing plate, substantially as specified, by 90
means of which combination the plane iron
can be readily thrown up to be sharpened
without the necessity of taking it out of
the machine as set forth.

2. I also claim the adjustable sliding 95
plane, substantially such as described, when
combined with the separate movable mouth-
piece by the means substantially such as
herein described, so that in setting the
plane iron, a differential motion is given to 100
the mouth-piece in order to vary to any de-
sired thickness the shaving that when the
plane is set to cut a thick or a thin shaving
the mouth-piece shall receive a correspond-
ing set, as described.

JOHN D. DALE.

Witnesses:

CANSTEN BROWN,
JOHN K. HAMLEN.