

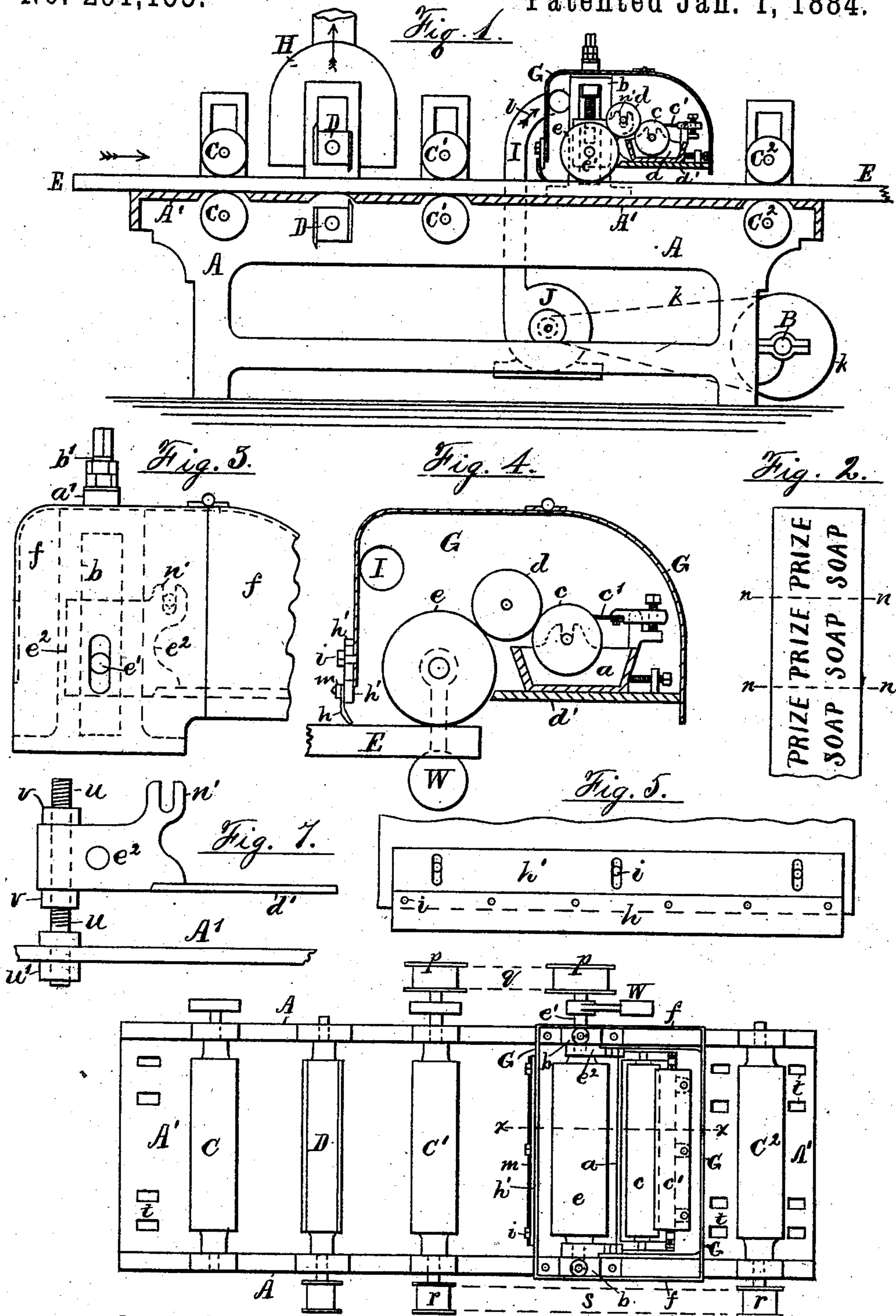
(No Model.)

W. A. COMPTON.

MACHINE FOR PLANING AND PRINTING WOOD.

No. 291,155.

Patented Jan. 1, 1884.



Attest:  
W. F. D. Crane.  
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Fig. 6.

Inventor:  
W. A. Compton per  
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# UNITED STATES PATENT OFFICE.

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## MACHINE FOR PLANING AND PRINTING WOOD.

SPECIFICATION forming part of Letters Patent No. 291,155, dated January 1, 1884.

Application filed December 15, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. COMPTON, a citizen of the United States, residing in the town of Liberty Corner, in the county of Somerset and State of New Jersey, have invented certain new and useful Improvements in Machines for Planing and Printing Wood, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention consists in the method herein described for printing planed boards by carrying the boards through the planing devices and thence directly to and through the printing devices, so as to plane and print the boards in one continuous operation, and thus save the handling that is involved in printing upon the planed surface of the wood in a machine subsequent to the planing and cutting up of the stuff.

The invention also consists in the appliances for carrying my improved process into effect, and the latter are illustrated in the annexed drawings, in which—

Figure 1 is a longitudinal central section of a planing-machine provided with my improvements. Fig. 2 is a plan of a board having successive sections imprinted with a recurrent design. Fig. 3 is an end elevation of the devices for printing enlarged, and Fig. 4 is a transverse section of the same on line *xx* in Fig. 6. Fig. 5 is a side view of the wiper fitted to the front edge of the screen. Fig. 6 is a plan of the top of the bed, showing the driving-gearing for the auxiliary feeding-roll; Fig. 7, an alternative construction.

A is the frame of an ordinary planing-machine, the driving mechanism being entirely omitted, except the main counter-shaft B at one end of the frame, and only the receiving feed-rollers C, the cutter-heads D, and the delivery feed-rollers C' being exhibited.

The printing devices are represented as mounted upon stanchions *b*, set upon the frame A beyond the rollers C', so that the latter may propel the boards E into the printing devices. The latter are adapted to impress a uniform coat of color upon the moving board, or to print any desired design by means of a stereotype-roller or a gum impression transfer-roller. The color or ink would in either case be carried in a trough and transferred to the im-

pression-roller by a distributing-roller, as in other ink-printing mechanisms. A suitable arrangement is shown in Fig. 4, in which *a* is the ink-trough, *c* is the ink-roller, *d* is the distributing-roller, and *e* is the impression-roller, of whatever kind may be preferred. The roller *e* is mounted upon a shaft, *e'*, in boxes *e''*, vertically adjustable in the stanchions *b*, and screws *b'* are fitted to the boxes *e''*, to adjust them above the table A' of the planing-machine the required distance. To secure an elastic pressure of the roller *e* upon the board as it passes beneath the roller, the screws *b'* are provided with india-rubber washers *a'*, adjusted between the collars of the screws and their bearings in the tops of the stanchions *b*. The screws are provided with square heads at the top to fit a suitable key or wrench, and may thereby be adjusted independently to secure a perfect impression, although both screws may be connected by a cross-shaft and gear-wheels, if preferred, so as to be moved simultaneously.

In Fig. 1 is shown the usual exhaust-hood, H, placed over the cutter-head D, to remove the chips and prevent the dust from flying about the machine. Such a device removes the greater part of the loose particles from the planed board; but to protect the printing devices effectually from injury by dust, I inclose them in a screen, G, which is adapted to inclose all the working parts entirely, and to effect this perfectly I form the boxes *e''* so as not to project outside the stanchions *b*, and am thus enabled to cover the whole side of the stanchion by a plate, *f*, as shown in Figs. 3 and 6.

In Fig. 4 is also shown a plate, *d'*, extended across between the boxes *e''*, to support the ink-trough *a*, one edge of the plate being fitted close to the impression-roller *e* and the other to the lower corner of the screen G. The ink-ing and other rollers are thus effectually inclosed, and the board is cleaned, before its admission to the roller *e*, by a flexible wiper, *h*, which is secured to the front edge of the screen, close to the board X, by means of an adjustable strip, *h'*, and screws *i*, inserted in slots in the strip, as shown in the detached view in Fig. 5. The wiper is shown as a piece of yielding india-rubber cloth, but may be made of any other flexible or yielding material, and may

be readily removed by securing it to the strip *h'* by a clamping bar or piece, *m*.

In Fig. 1 a blast-pipe, *I*, is shown connected with the top of the screen *G*, and an arm, *L*, indicates the influx of air from a blower independently operated. Such a blast would serve not only to clean off the board as it entered the space within the screen *G*, but would effectually prevent the penetration of any dust inside the screen or its adhesion to the printing or inking rollers.

The blower may, if desired, be attached to the planer, as at *J*, and be operated by pulleys and a belt, *k*, from the counter-shaft *B*.

The distributing-roller *d* is shown in Fig. 1 mounted in bearings *n*, attached or formed upon the roller-boxes *e''*, so as to rise and fall therewith as the printing or impression roller *e* is adjusted to the thickness of the board *E*, and the inking-roller *c* is shown provided with an adjustable doctor, *c'*, to regulate the amount of color transferred; but any other suitable means may be used for distributing the color to the roller *c*. The impression-roller may thus be used, if formed with a smooth surface, to uniformly coat the planed board with color, either in the form of stain, paint, or ink; or the impression-roll may be formed to print any desired inscription or design. Thus in Fig. 2 the words "Prize Soap" are shown impressed upon the board at regular intervals, and as the board is readily cut apart on the section-lines *n n* after the planing and printing operation, the labor of thus printing the boards is greatly reduced. By such means the printing of boxes or box-stuff is greatly facilitated, as the labor of handling all the separate pieces and feeding them to a printing-machine separately is avoided.

In Fig. 6 pulleys *p* are shown attached to the shafts of the discharging feed-roller *C'* and the printing-roller *e*, and connected by a belt, *q*. By properly proportioning the pulleys *p* the roller *e* may be made to rotate with the same surface-speed as the moving board. The roller *e* may also be operated by the board alone, and the impression be always applied to the first end of the moving board correctly by means of a balance-weight, *W*, attached by an arm to the axle of the roller *e*, upon the same side as the commencement of the desired impression. The roller would be unprovided with any pulley *p* or belt *q* in such a case and would be constructed so as to turn freely in its bearings. It would therefore always assume the position shown in Fig. 4 in dotted lines at *W*, when a board had been passed under it, and would always commence its impression in the same place upon all the boards fed into it, the springs *a'* securing a contact of the roller with the entering board and the rotation of the roller by the board's movement.

Beyond the printing devices a second delivery-roll, *C''*, is shown mounted in bearings in the usual manner, to remove the boards entirely from the machine after printing, and such roll *C''* may be operated by any arrange-

ment of gear-wheels, as in common planing-machines, or by pulleys *r r* and belt *s*, as shown in Fig. 6. When such roller is used, the rotations of the printing-roller are readily secured without any driving mechanism, as pulleys *p* for the same, and the printed impression is less liable to damage when a board sticks fast in the machine, as is sometimes the case, while the feed-rollers are revolving.

In Fig. 7 is shown an alternative arrangement and construction for the bearings of the rollers *c*, *d*, and *e*.

The bed of a planing-machine, as shown in Fig. 6 at *A'*, is generally provided with slots *t t*, and to adapt my printing devices readily to existing planing-machines I provide collared studs *u*, as shown in Fig. 7, and secure them by nuts *u'* through such slots *t*, near opposite edges of the bed, beyond the delivery-roll *C'*, and I construct the bearings for the roller *e* to slide up and down upon such studs as desired. Nuts or collars *v* may be provided on the studs, to secure the bearings in the desired positions due to the varying thicknesses of the boards *E*, and the inking devices would be attached to the bearings, as shown in Fig. 4. The bearings of the auxiliary feed-roller *C'* may be similarly mounted, and the required attachments thus be quickly made to any planing-machine having a bed of sufficient length.

In the cases herein mentioned, wherein the roller *e* is not provided with any direct connection, as pulleys *p* and belt *q*, to the delivery feed-rollers *C'*, it is obvious that the impression-roller *e* is operated as efficiently by the frictional contact of the board as if thus directly connected; and, indeed, such contact may be regarded as the efficient or operative agent, even when the belt *q* is used, for it would in practice be very difficult to secure the precise speed for the impression-roller, as its surface would be impressed by the board if of soft composition, or would penetrate the board if of hard substance, and in either case would somewhat affect the surface-speed of the roller *e*. The belt *q* would therefore require to be loose enough or narrow enough to slip, if needed, to secure the required correspondence between the movements of the board and roller *e*, and the board be permitted to control the speed or rotations of the roller.

I am aware that the different elements of my invention have been used before, as in United States Patent No. 161,726, issued April 6, 1875, and No. 182,416, issued September 19, 1876, and I do not therefore claim the same as my invention; but having shown herein how I combine and use such elements to plane and print a board in a single continuous operation, the nature of my improvement will be understood to consist in transferring the board automatically from the planing to the printing device, and in cleaning the surface of the board (*i. e.*, removing dust and chips) in the transit, so as to adapt the board to receive the subsequent impression.

It is obvious that the ordinary operation of a planing-machine produces a great amount of dust and shavings, and that the joinder of a printing device thereto not only necessitates the protection of the printing apparatus from such dust, but the effectual cleaning of the planed surface before it is applied to the impression-roller *e*. My process of continuous planing and printing therefore involves the cleaning of the board in its transit to the impression-roller, which cleaning is easily effected by the means described above, and thus adapts the board to come in contact with the impression-roller without injury to the latter.

Having thus fully described my invention, I claim the same as follows:

1. The combination, in an organized machine, of a wood-planing mechanism, as a rotary cutter-head, *D*, a cleaning mechanism, as

the wiper *h*, and a printing mechanism, as the roller *e*, the whole being combined substantially as described, to plane, clean, and print the surface of the wood in a continuous operation, as and for the purpose set forth.

2. The combination, with the planing-machine having the cutter *D* and feed-roller for propelling the boards, of the impression-roller *e*, provided with inking devices, and rotated by a connection, as pulleys *p* and belt *q*, to the feed-roller of the planing-machine, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM A. COMPTON.

Witnesses:

THOS. S. CRANE,  
W. F. D. CRANE.