H. D. STOVER.

PLANING-MACHINE.

No. 176,091. Patented April 11, 1876.

FIG. 1.

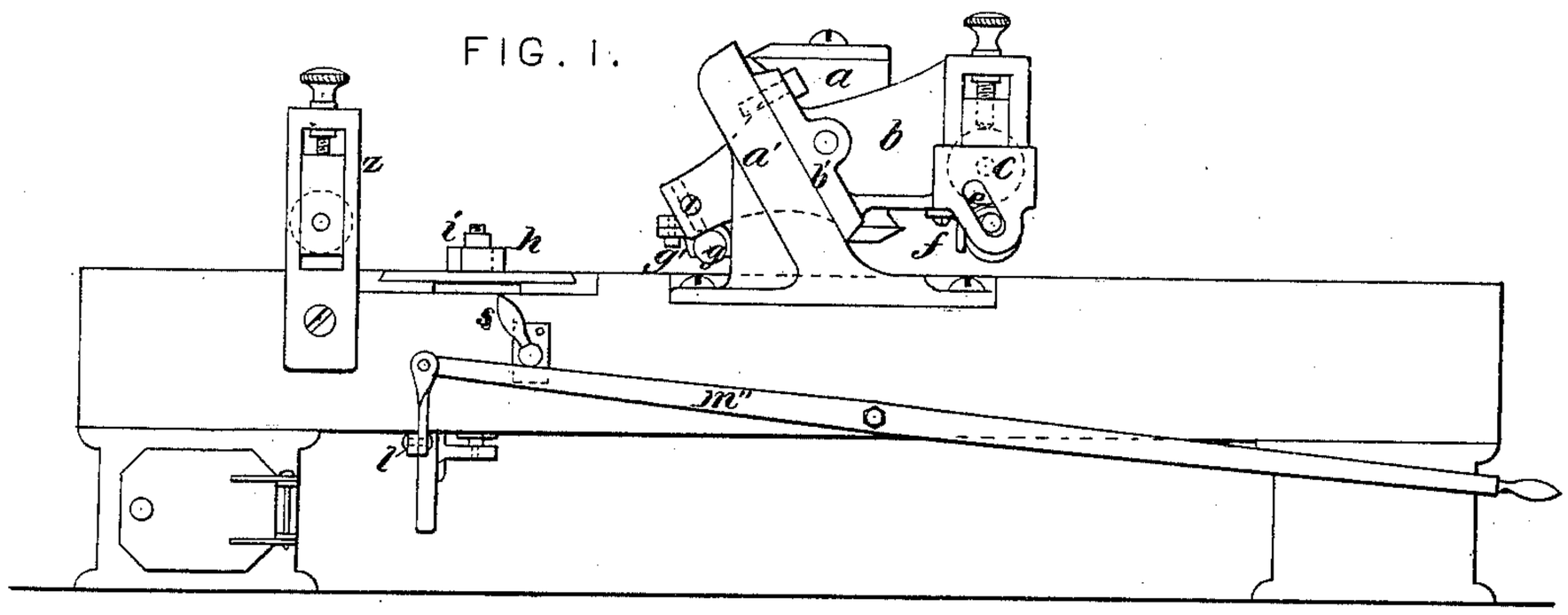


FIG. 2.

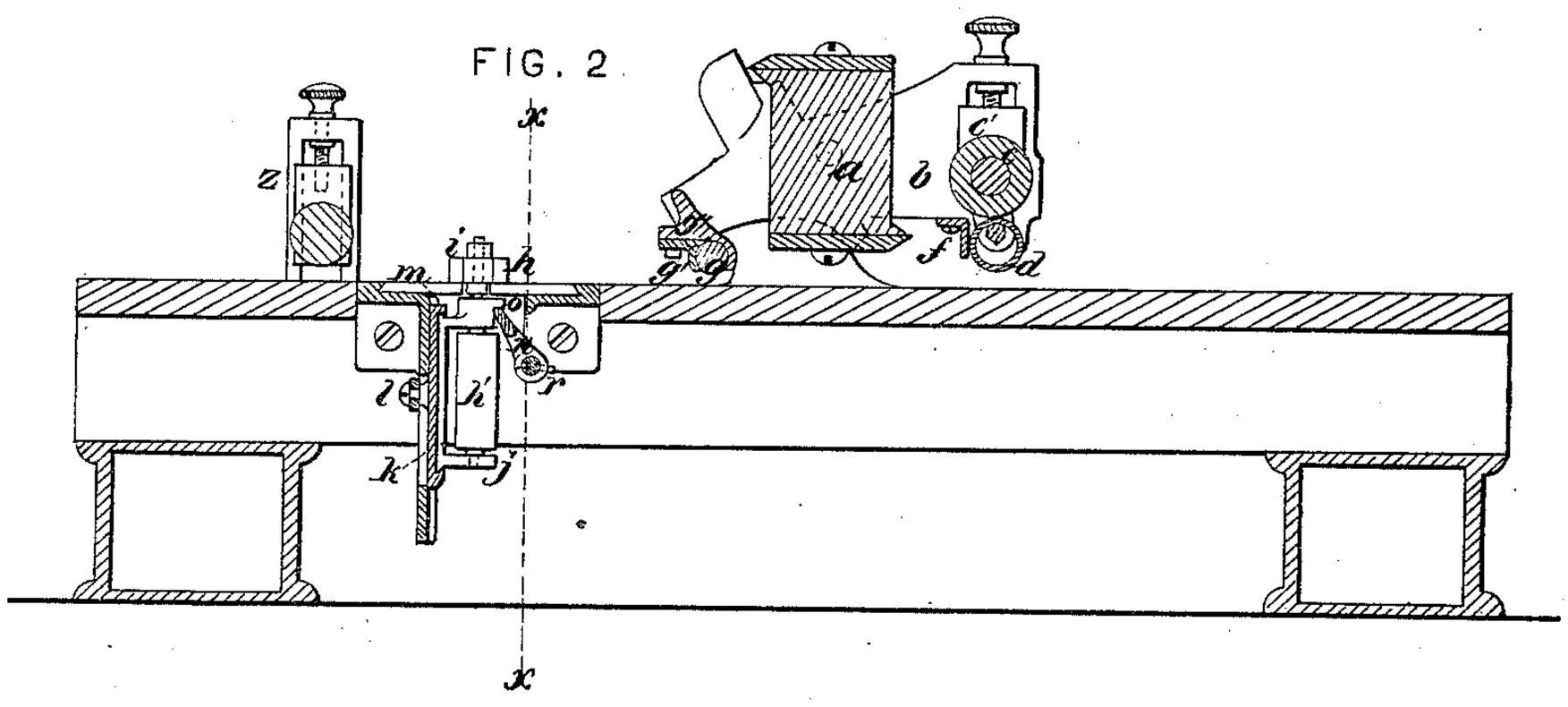


FIG. 3.

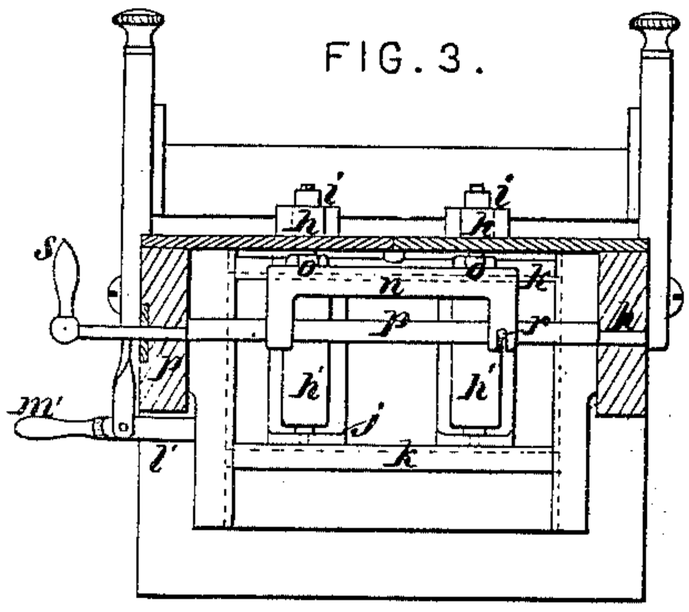


FIG. 4.

FIG. 5.

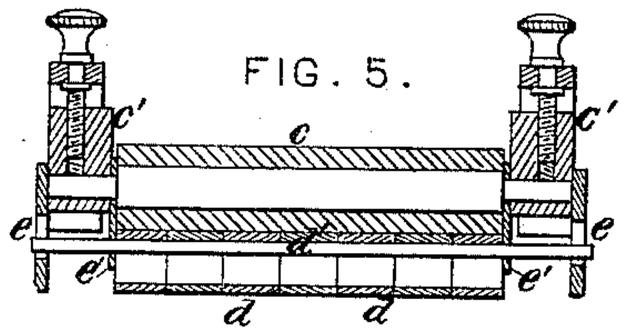
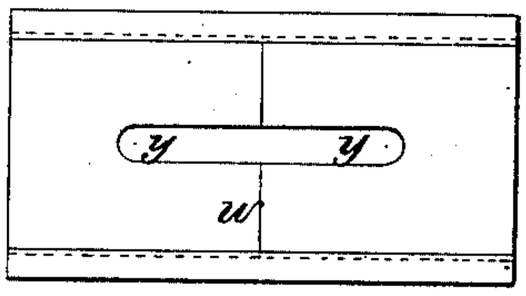


FIG. 6.



WITNESSES.

Geo. F. Bigington.
Chas. H. Forbes

H. D. Stover

INVENTOR.

UNITED STATES PATENT OFFICE

HENRY D. STOVER, OF NEW YORK, N. Y.

IMPROVEMENT IN PLANING-MACHINES.

Specification forming part of Letters Patent No. **176,091**, dated April 11, 1876; application filed February 26, 1876.

To all whom it may concern:

Be it known that I, HENRY D. STOVER, of the city and State of New York, have made certain new and useful Improvements in Planing-Machines; and I do hereby declare the following to be an exact and full description thereof, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a side elevation. Fig. 2 is a longitudinal vertical section. Fig. 3 is a transverse section through the line *x x*, Fig. 2. Fig. 4 is a bottom view of the back adjacent pressure-roller. Fig. 5 is a sectional view of the forward adjacent pressure-roller; and Fig. 6 a plan view of the sliding covers of the opening in the bed of the machine to accommodate the matching devices.

This invention relates to improvements in wood planing and matching machines; and it consists, first, in the construction and arrangement of the parts composing the forward elastic roller, by means of which pressure is applied upon all portions of the lumber as it passes beneath it, the roller accommodating itself to all inequalities in the thickness of the lumber either widthwise or lengthwise; second, in the construction and arrangement with the cutter-head of the adjacent back pressure-roller; and, third, in the arrangement and adjustments of the matching devices, all as hereinafter fully described, and subsequently pointed out in the claims.

Referring to the drawing, *a* is a rotary cutter head or cylinder, constructed in the usual manner, and suspended in adjustable bearings upon the standards *a' a'*, which are secured to or form a part of the bed of the machine. *b b* are arms connected to the standards *a' a'* or the bearings *b' b'* for supporting the forward elastic pressure-roller *c* and its adjuncts. This pressure-roller is constructed of several parts, and forms an important feature of my improvements. The roller *c* is composed of rubber or other elastic material, and is journaled in vertically-adjustable bearings *c' c'*. Beneath the roller *c* is arranged a series of movable rings, *d d*, upon a rod, *d'*, passing into guide-slots *e e*, and connected to the shaft of the roller *c* by means of links *e' e'*, so that as the roller *c* is adjusted, the rod *d'*, carrying the rings *d*, is correspondingly raised and lowered. The slots *e e* are inclined for the purpose of maintaining the rod *d'* at its relative distance from the cutter-head. The loosely-arranged rings *d d d* are constructed with an internal diameter greater than the diameter of their supporting-rod *d'*, to allow of a universal movement. They are also constructed of the proper external diameter to suit the character of the work, and may be of any desired width or number, and extend across the bed of the machine or the length of the elastic roller. The purpose of these independently-movable rings is to insure a pressure upon all portions of the lumber which will effectually prevent "chattering," caused by the action of the cutter-head. As the lumber is passed beneath the rings they are forced against the elastic roller *c*, and each ring will accommodate itself to any inequalities in the thickness. To resist a tendency of a longitudinal movement of the rings as the lumber is fed forward, a bar, *f*, is attached to the frame directly behind the rings. This bar may be fixed, as shown, or a roller may be substituted to reduce friction. *g* is a vertically-adjustable pressure-roller, arranged in the bar *g''*, directly behind the cutter-head, and is journaled within a continuous bearing, *g'*, throughout its entire length. The edges of this bearing are constructed to act as scrapers for keeping the surface of the roller clean. This roller is of small diameter, in order to allow it to press upon the lumber as near as possible to the cutter-head. It may be constructed in sections or short lengths, and any of the well-known adjusting devices may be applied to either of the pressure-rollers described.

The matching devices are constructed and arranged as follows: The matcher-heads *h h* are mounted upon vertical spindles *h' h'*, and secured and adjusted thereon by means of a screw-thread and double jam-nuts *i i*. The spindles *h' h'* are supported in bearings upon a laterally-sliding frame, *j*, which may be adjusted to conform to any width of lumber. The frame *j* is mounted upon a vertically-sliding frame, *k*, which has sufficient movement to raise the matcher-heads into position to operate upon the lumber and lower them entirely beneath the bed-plate of the machine when

not in use. The frame *k* is raised and lowered by means of the pivoted lever *l*, and its upward movement arrested by the stop *m*.

The lever *l* may be operated by a short arm or handle, *m'*, at the side of the machine, or an additional lever, *m''*, may be connected thereto, and extended to the end of the machine, as shown in Fig. 1.

When the matcher-heads are brought into position they are held firmly in place by means of the pawl *n* engaging with the studs *o o* upon the frame *k*. The shaft *p*, carrying the pawl *n*, is provided with eccentric journals *p'*, and operated by the handle *s*. The pawl is connected to the eccentric shaft *p* by means of a pin, *r*, which enters a slot in the shaft, extending circumferentially a sufficient distance to allow the shaft a partial independent revolution; or the slot may be made in the pawl, and the pin attached to the shaft. The pawl is set upon the shaft in such a relative position to the eccentric journals of the shaft that when it is engaged with the studs *o* a further revolution of the shaft forces it upward snugly beneath the studs, a reverse motion lowering and relieving it before disengaging it. The opening in the bed-plate to accommodate the matching devices is covered by a divided sliding plate, *w*, Fig. 6, provided with slots *y y*, which is removed when the matcher-heads are raised or lowered, and closed when the heads are in operation, or lowered beneath the bed-plate. An ordinary adjustable roller, *z*, may also be applied in relation to the matching mechanism, as shown in Figs. 1 and 2.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A pressure-roller composed of a series of movable metallic rings mounted upon a suitable support, in combination with an external elastic backing-roll, *c*, as and for the purpose specified.

2. A pressure-roller composed of a series of movable rings, in combination with an elastic and rotating roller, as shown and described.

3. A pressure-roller composed of a series of movable rings, *d d d*, mounted upon a rod, the internal diameter of the rings being greater than the diameter of the rod, in combination with the bar *f* and elastic roll *c*, as and for the purpose specified.

4. In an adjustable pressure-bar for planing-machine, the combination of the main portion of the bar *g''*, adjustable plate *g'*, which form the bearing for the roller, and the scrapers for cleaning it, and the roll *g*, all substantially as and for the purpose specified.

5. The vertically-sliding frame *k*, carrying the laterally-sliding frame *j* and matching devices, in combination with a pivoted hand-lever for moving the same, substantially in the manner shown and described.

6. The vertically-sliding frame *k*, carrying the matching devices, and provided with studs *m m*, in combination with a hinged stop or pawl, *n*, as and for the purpose specified.

7. The eccentric shaft *p*, provided with a slot, as described, in combination with the pawl *n* and pin *i*, as and for the purpose specified.

H. D. STOVER.

Witnesses:
AINSWORTH BROWN,
C. A. OEHL.