E. BENJAMIN.

Planing-Machine.

No. 164,634. Patented June 22, 1875.

Fig. 1.

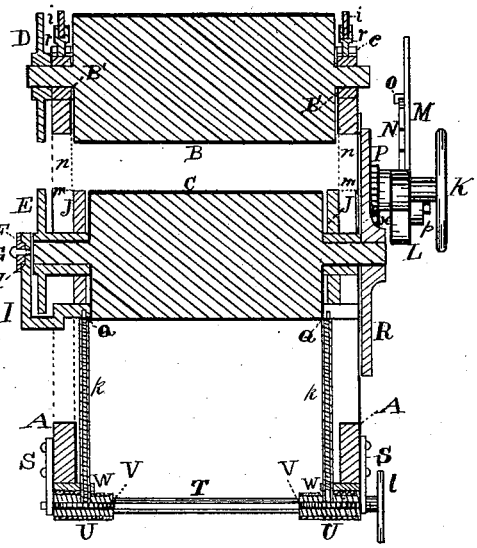


Fig. 3.

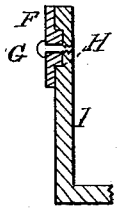


Fig. 2.

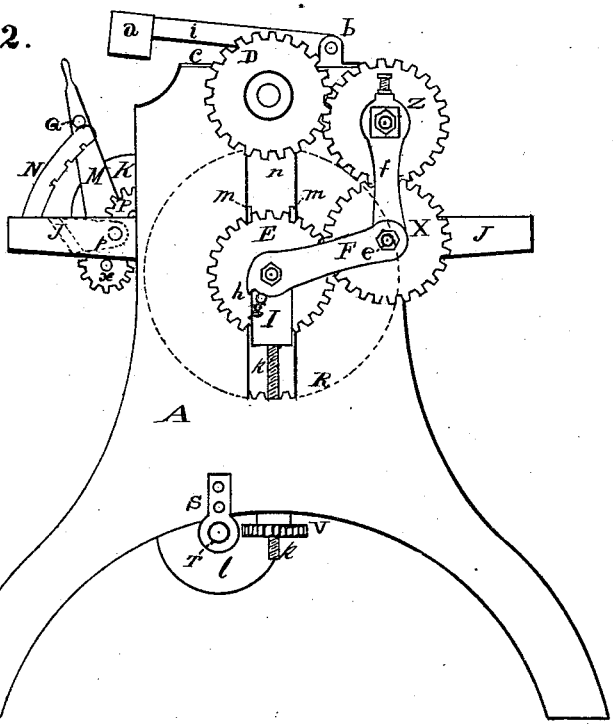
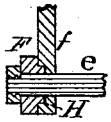


Fig. 4.



Witnesses:
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O. H. Adix.

Inventor:
Edwin Benjamin.
By G. L. Chapin, Atty.

UNITED STATES PATENT OFFICE.

EDWIN BENJAMIN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO SAMUEL W. PEASE, OF SAME PLACE.

IMPROVEMENT IN PLANING-MACHINES.

Specification forming part of Letters Patent No. **164,634**, dated June 22, 1875; application filed April 19, 1875.

To all whom it may concern:

Be it known that I, EDWIN BENJAMIN, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Planing-Machines, of which the following is a specification:

The nature of the present invention consists in connecting-bars, with annular projections on their inner faces, fitting in annular grooves in the parts with which they connect, whereby in expansion-gear there is no wear of the joints except by the movement in adjusting the rollers to or from each other. The ordinary method of forming the joints is by extending the journals of the rollers through the bars, subjecting the latter to the same wear as the journal-boxes.

In the drawings, Figure 1 is a transverse central sectional elevation of my improved planing-machine; Fig. 2, a side elevation thereof; Fig. 3, an enlarged view of one of the connecting-bars and the bridge which supports it; Fig. 4, an enlarged view of the central joint of the connecting-bars.

A represents a substantial frame, to be made of iron or other suitable material for the support of the mechanism hereinafter named. C represents the lower feed-roller, which has its bearings in the central part of a carriage, J, so that when the latter is elevated or depressed the roller will be carried with it. This carriage is held in a horizontal position by means of outwardly-turned flanges *m m*, which run in slots *n n*, formed in the frame A. The means for operating the carriage J consist of screw-rods *k k*, having at their upper ends Q bearings in bridges I fastened to said carriage, as shown at Fig. 1. The lower ends of the rods are provided with toothed wheels V V, so that by turning the wheel *l* on a rod, T, provided with screw-threads U, the rods *k* will be turned through nuts W, and consequently move the carriage. The upper feed-roller B runs in boxes B′, fitted to slide in the frame A far enough to compensate for the uneven thickness any board or plank may have. The means for holding the roller B to the surface of stuff to be planed consists of forked bearings *r r*, whose lower ends pass through plates *c c* on the top of the frame A, and bear on the top part of the boxes B′. In the forked ends of the bearings *r r* are placed weighted levers *i i*, which are pivoted to the plates *c c* by means of ears *b*, so as to oscillate. To the journal of one end of the feed-roller C is secured a spur-wheel, R, which is driven in one direction by a pinion, P, and in the opposite direction by a pinion, *x*. Both of these pinions are hung on a lever, L M, which is pivoted to a bridge, *p*, fastened to the carriage J. The long end M of the lever is arranged by means of a catch, *o*, and a notched rack, N, to be locked in any desired position. The gear D is fixed to the journal of the roller B, and the gear E is fixed to the journal of the roller C. The expansion-gear is shown at Z X, and the object of it is to provide means for attaining a uniform motion of the rollers in any position they may occupy. Such gear, however, is in common use; I therefore confine my invention to the following construction, and claim therefor:

A bridge, I, is attached to the under side of the carriage J, and it extends up far enough to form a support for the connecting-bar F. This bar has formed on it at each end an annular bearing, H, Figs. 3 and 4. The bearing fits an annular depression at one end, in the bridge I, so as to turn therein, and the annular bearing at the other end of the bar fits in an annular depression in the lower end of the connecting-bar F, whereby the rotation of the gear will not wear the bearings of the said bars, as is the case when the bars are only held in place by the journals of their respective gear. The bar F is held to the bridge I by means of a screw-bolt, G, tapped into the bridge, and the other end of the bridge I is held to the bar F by the shaft *e* of the gear X. The gear Z is pivoted to the frame A, the gear X only being movable. To adjust the roller C, turn the wheel *l*, and to reverse the motion of the roller, move the lever M on the rack N.

I am aware of the patent granted to Bancroft and Sellers, February 7th, 1854, but in this patent the combination is for other elements than those shown in my machine. I have described mechanism and elements in

the specification which are not claimed, but the description is necessary to enable a complete machine to be built.

I claim and desire to secure by Letters Patent—

1. The bar F, provided with annular bearing H H, in combination with the bar *f*, bridge I, gearing D Z X E, and rollers B C, as set forth.

2. The lever M L, carrying the pinions P *x*, in combination with the bridge I, carriage J, spur-wheel R, rollers B C, and rack N, as and for the purpose specified.

EDWIN BENJAMIN.

Witnesses:
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