(No Model.)

F. A. PRATT.

FRAME AND CARRIAGE FOR MACHINES.

No. 319,618. Patented June 9, 1885.

Fig. 1.

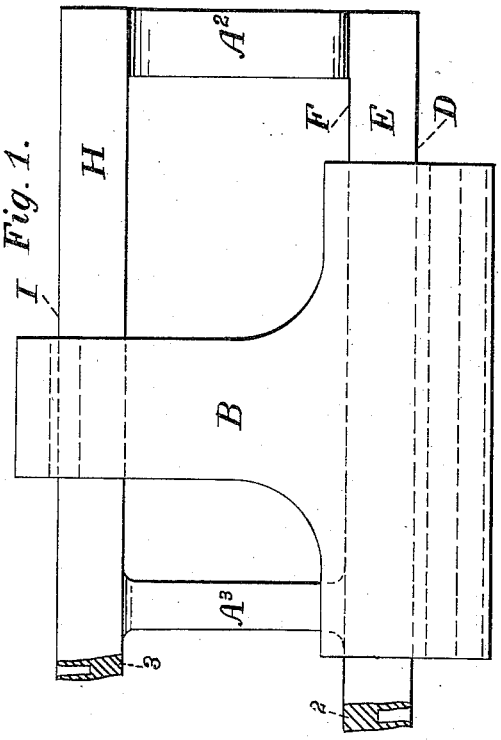


Fig. 2.

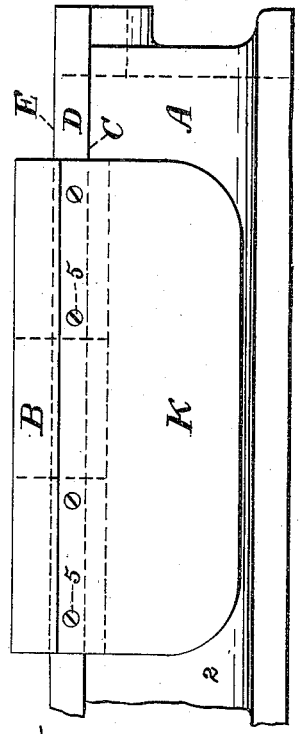


Fig. 4.

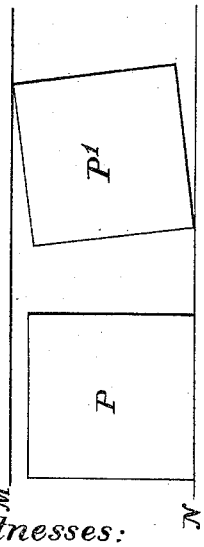
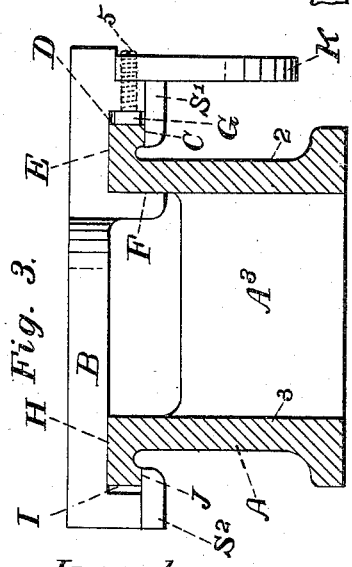


Fig. 5.

Fig. 3.



Witnesses:

H. W. Faulkner.

C. O. Palmer.

Inventor:

Francis A. Pratt,

by F. H. Richards,

Attorney.

UNITED STATES PATENT OFFICE.

FRANCIS A. PRATT, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE PRATT & WHITNEY COMPANY, OF SAME PLACE.

FRAME AND CARRIAGE FOR MACHINES.

SPECIFICATION forming part of Letters Patent No. 319,618, dated June 9, 1885.

Application filed January 30, 1885. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS A. PRATT, a citizen of the United States, residing in the city and county of Hartford, State of Connecticut, have invented a new and Improved Frame and Carriage for Machines, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a top view of a part of a machine frame and carriage embodying my improvements. Fig. 2 is a front view of the same. Fig. 3 is an end view drawn in projection to Fig. 2. Figs. 4 and 5 are diagrams illustrating some of the advantages resulting from my improvements.

Similar characters designate the same parts in all the figures.

This invention relates to improvements in the frame and carriage of such machines as lathes, milling-machines, and others of a similar class, the object being to furnish a frame having a carriage so fitted thereon as to slide freely with the least amount of play.

The invention consists in certain combinations, which will first be described in connection with the drawings, and afterward pointed out in the claim.

In the drawings, A designates part of a lathe-bed similar to those used for the so-called "gibbed" lathes. This bed consists, substantially, of two flanged beams, 2 and 3, set edgewise and connected by end pieces, A^2, and a suitable number of intermediate cross-bars, A^3. The front side, 2, of the frame has four bearing-surfaces, as follows: top surface, E, bottom surface, C, front surface, D, and rear surface, F, and all these surfaces, it will be noticed, are on the solid top flange and web of the front beam. The rear beam, 3, has only two bearing-surfaces, H and J, corresponding, respectively, to the surfaces E and C.

B designates a lathe-carriage, which is fitted to slide on the frame. It rests on the top surfaces, H and E, and is held down by front and rear straps S' S^2, which bear, respectively, on bottom surfaces, C and J. This way of holding down such a carriage by two such straps is now well known, and will be fully understood; but, so far as I am aware, such carriages have not heretofore been prevented from moving laterally by gibbing them to one beam only of the frame—that is, the vertical bearing-surfaces have not heretofore been brought near to each other while keeping the top surfaces, and also the bottom surfaces, wide apart.

In the frame shown in the drawings the carriage is fitted to the surfaces D and F, which surfaces are near to each other, as shown, (surface F being between surfaces C J,) and which, being on the same solid part, are always at a rigidly-fixed distance apart. By the usual method of fitting the carriage it would be gibbed to surfaces D and I—one on each beam of the frame—so that any springing together of said beams or distortion of them would directly affect the closeness of the fitting. This difficulty is entirely obviated by my improvements.

In practice a gib or shoe, as G, adjusted by screws, as 5, is provided for regulating the closeness with which the carriage fits the surfaces D and F. Said gib may be placed on either of said surfaces, as may be preferred. K designates the usual apron to which, in engine-lathes, the carriage-feeding mechanism is attached. Since any swinging of the carriage in a horizontal plane is prevented by the long bearing of said carriage on surfaces D and F, the rear part of the carriage will generally require but a short bearing on surfaces H and J, as illustrated in Fig. 1.

The bringing of surfaces D and F near to each other, as shown and described, has another important advantage not involved, in simply making them on the same solid part of the frame. This is illustrated by Figs. 4 and 5, in which lines M N represent the horizontal distance between surfaces D and F in two different cases, in one of which the said surfaces are supposed to be about three times as wide apart as in the other case.

P is a parallelogram having a width (vertically in the drawings) which is less than the distance between said lines by the same amount in each instance. If, now, we rotate said parallelograms so as to touch both lines, as at P', then we shall find that the angular motion will be less in Fig. 5 than in Fig. 4; hence it is obvious the arrangement in Fig. 5 is the more desirable, as it allows greater

play between the parts with a given rigidity of the carriage.

It will be understood that the several surfaces may deviate from the horizontal and vertical planes in which they are shown without departing from the spirit of my invention.

Having described my invention, I claim—

The combination of a machine-frame having top bearing-surfaces, E and H, lower bearing-surfaces, C and J, and bearing-surfaces D and F, of which surfaces F has a lateral position between surfaces C and J, and a carriage fitted to slide on said bearing-surfaces, substantially as described.

F. A. PRATT.

Witnesses:

F. H. RICHARDS,

C. O. PALMER.