No. 728,224. PATENTED MAY 19, 1903.

G. W. GREENWOOD.

LATERALLY ADJUSTABLE SIDE BEARING.

APPLICATION FILED OCT. 16, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. I.

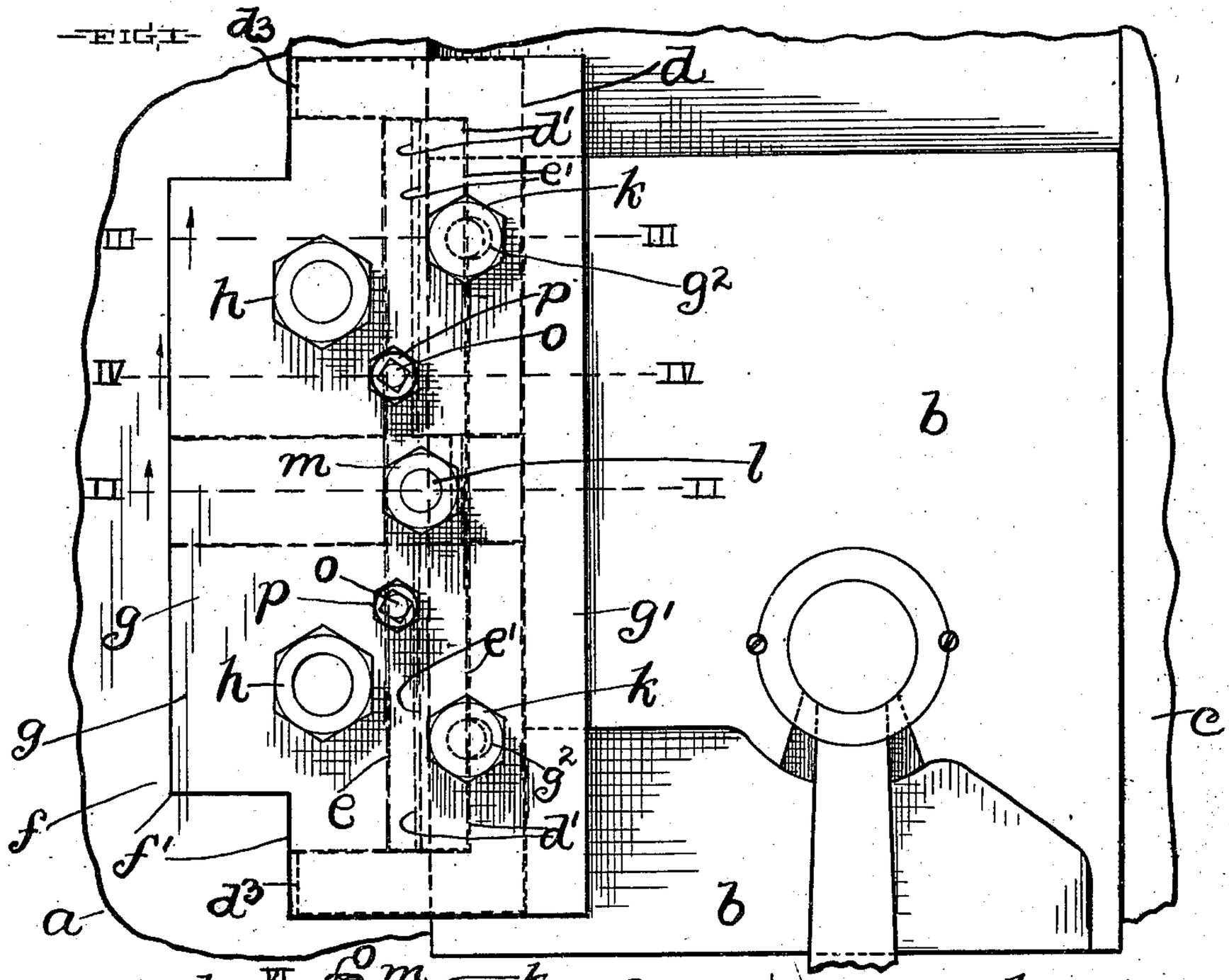


FIG. II.

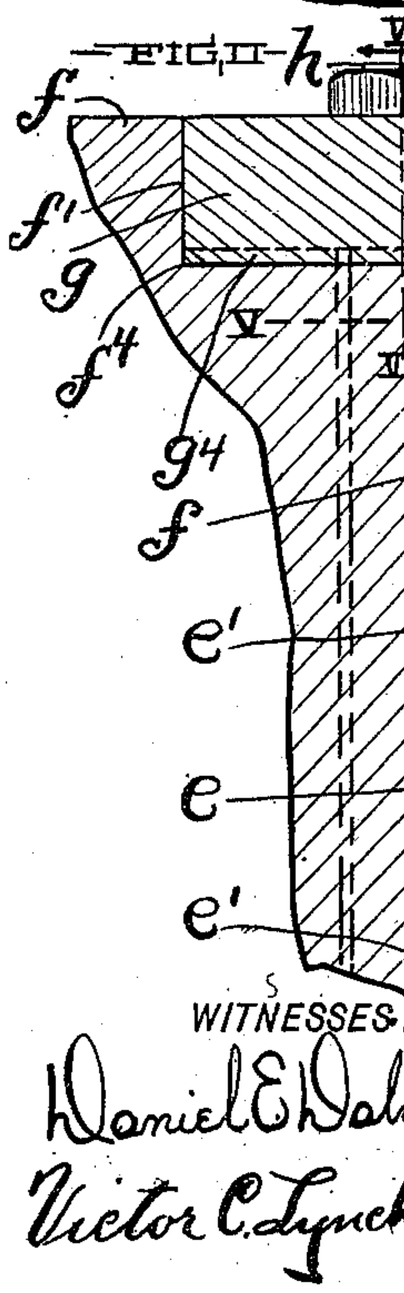
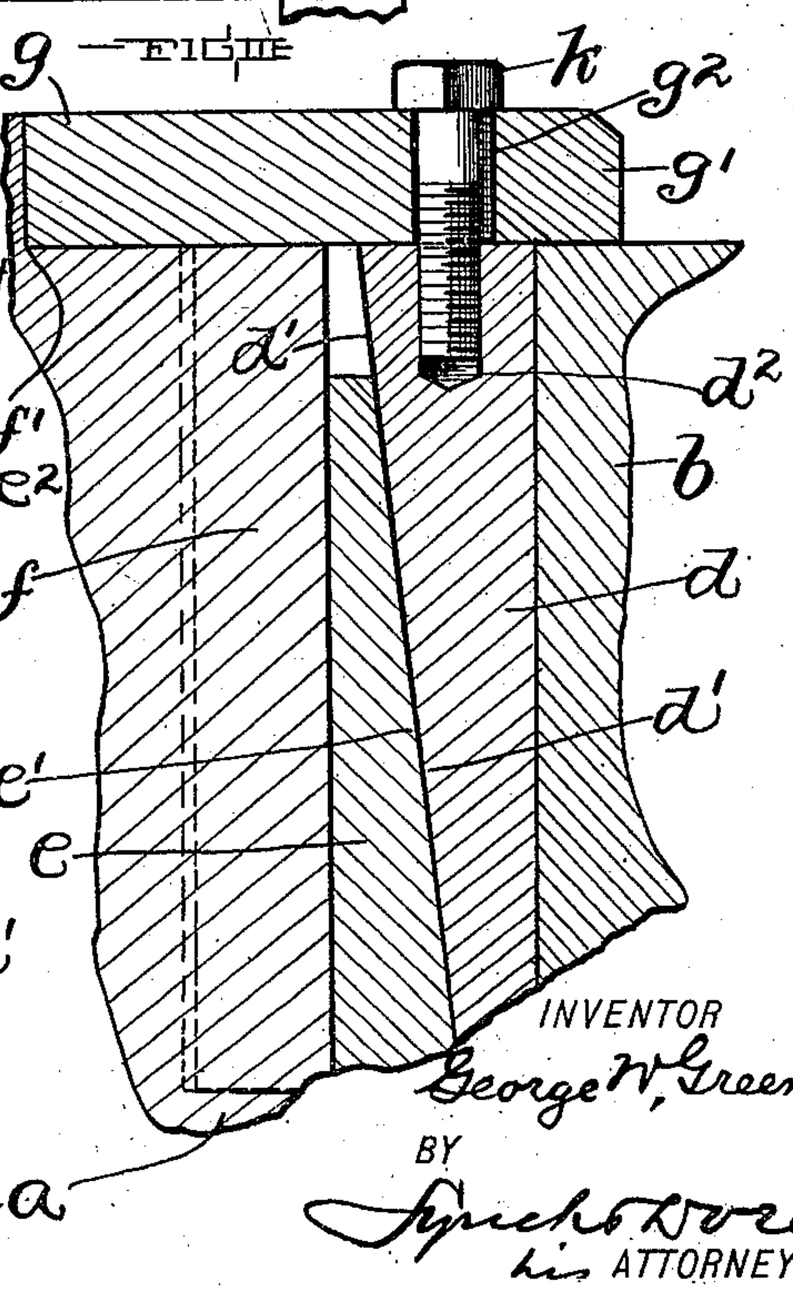


FIG. III.



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NO MODEL. 2 SHEETS—SHEET 2.

FIG. IV.

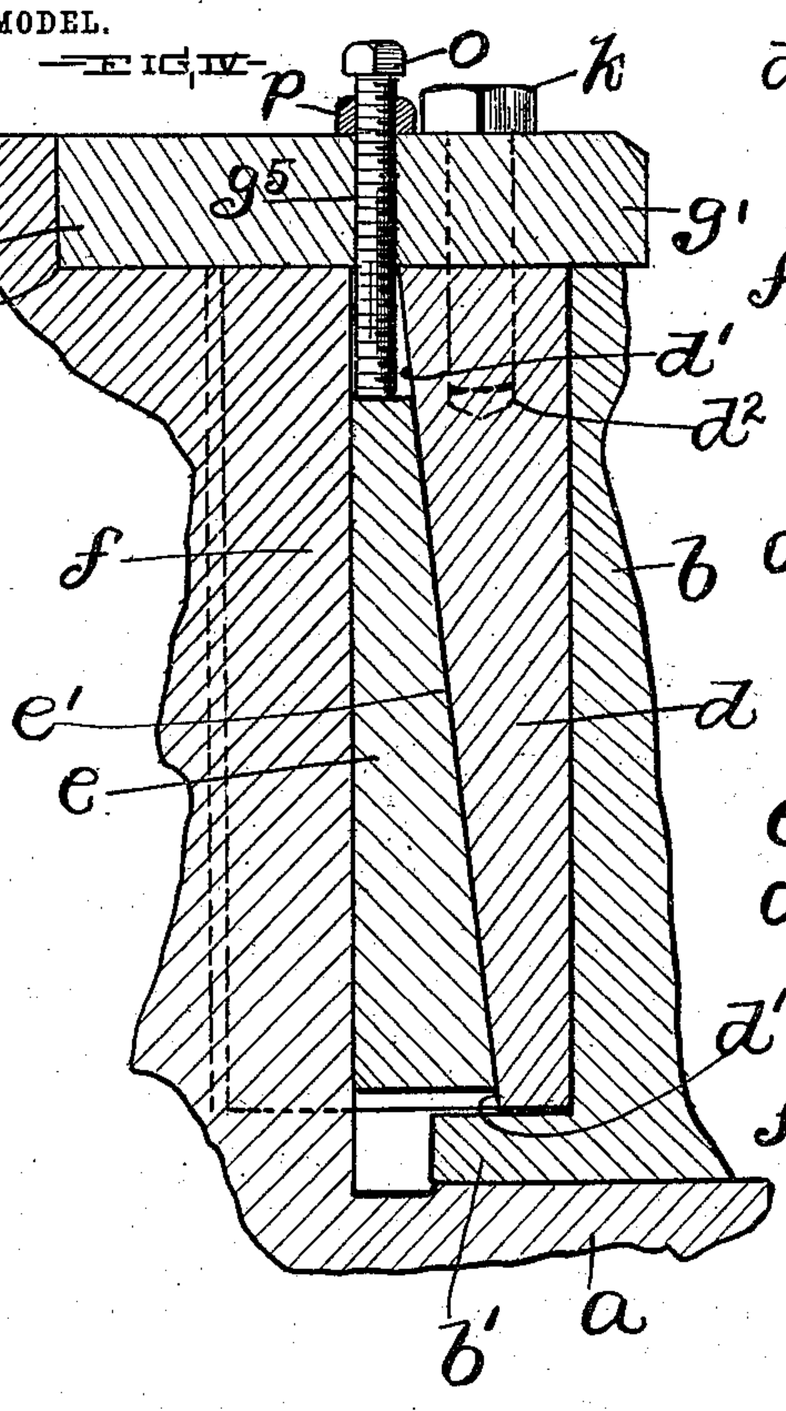


FIG. V.

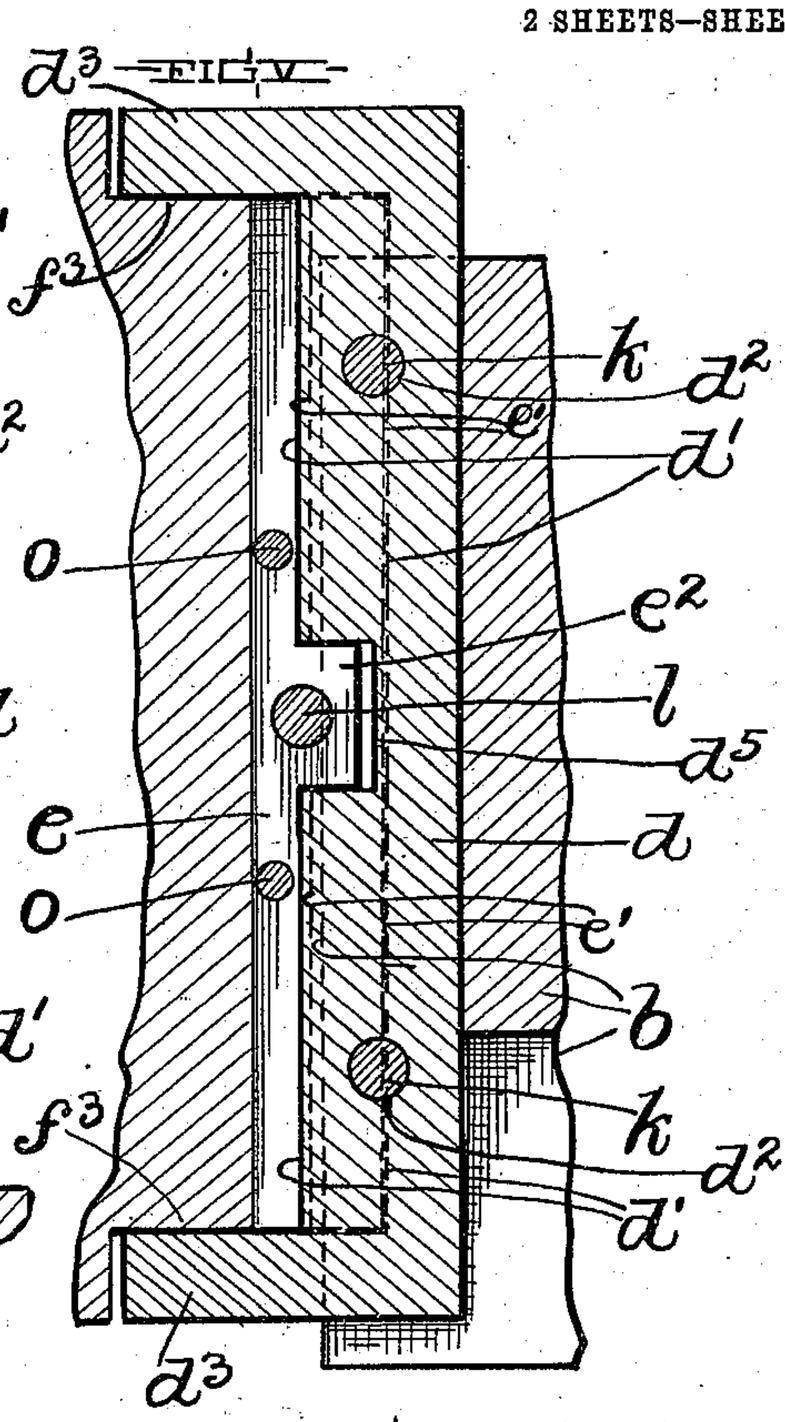


FIG. VI.

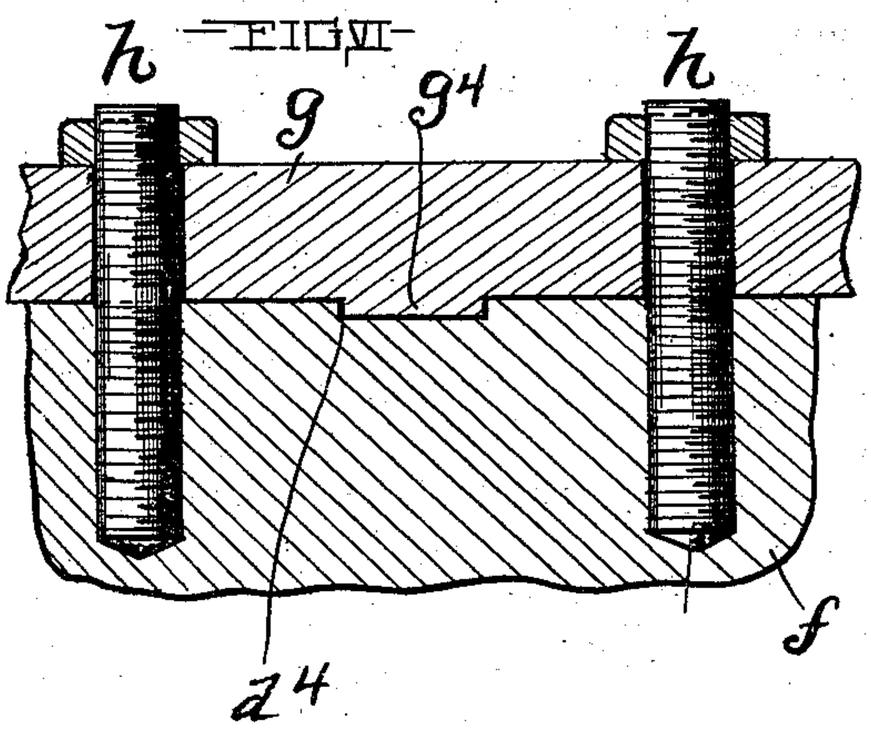
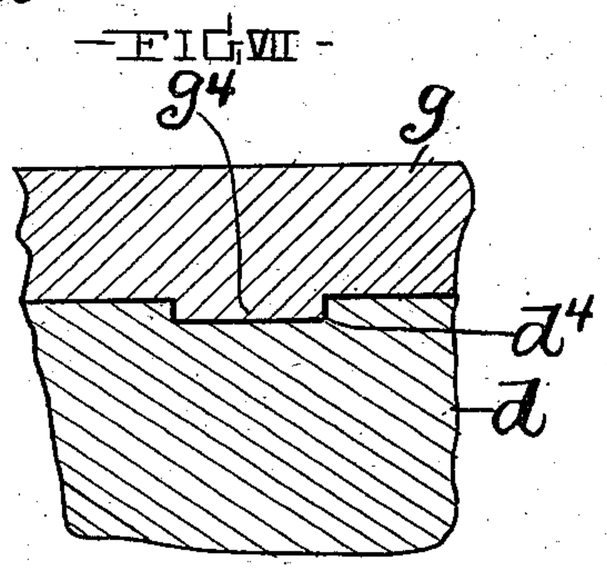


FIG. VII.



WITNESSES:

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No. 728,224. Patented May 19, 1903.

UNITED STATES PATENT OFFICE.

GEORGE W. GREENWOOD, OF CLEVELAND, OHIO.

LATERALLY-ADJUSTABLE SIDE BEARING.

SPECIFICATION forming part of Letters Patent No. 728,224, dated May 19, 1903.

Application filed October 16, 1902. Serial No. 127,551. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. GREENWOOD, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Laterally-Adjustable Side Bearings for Slides or Reciprocating Members; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in laterally-adjustable lateral or side bearings for slides or reciprocating members.

The object of this invention is to provide a simple, conveniently laterally-adjustable, durable, and efficient lateral bearing; and with this object in view and to the end of realizing other advantages hereinafter appearing said invention consists in certain features of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure I is a top plan of a slide, the support for the slide, and a laterally-adjustable side bearing embodying said invention. Fig. II is a vertical section on line II II, Fig. I, looking in the direction indicated by the arrow. Fig. III is a vertical section on line III III, Fig. I, looking in the direction indicated by the arrow. Fig. IV is a vertical section on line IV IV, Fig. I, looking in the direction indicated by the arrow. Fig. V is a top plan in section on line V V, Fig. II. Fig. VI is a vertical section on line VI VI, Fig. II, looking in the direction indicated by the arrow. Fig. VII is a vertical section on line VII VII, Fig. II, looking in the direction indicated by the arrow.

Referring to the drawings, *a* designates the bed of the machine, which comprises a slide *b*, which is supported from and is adapted to travel in the said bed. The bed *a* next below the slide *b* forms the bottom of the slideway, which is formed in the bed and engaged by the slide *b*, and the bed is provided at one side of the path of the slide with an upright guide-forming wall *c*, which extends along the said path and forms one of the side walls of the aforesaid slideway. The bed *a* at the opposite side of the path of the slide is provided with a vertically-arranged laterally-adjustable plate *d*, which extends along the said travel and affords lateral bearing to the said side of the slide. The lateral adjustability of the plate *d* renders the said plate capable of being readjusted to take up any wear occasioned between the said plate and the slide, and suitable means, as will hereinafter appear, is provided for securing the said plate in the desired adjustment.

A vertically-adjustable plate *e* is arranged at the outer side of the laterally-adjustable plate *d*, between the latter and an upright wall *f* of the bed *a*.

The slide *b* is provided at the bottom with a flange *b'*, which extends in under the plates *d* and *e* and longitudinally of the slide and is instrumental in preventing upward displacement of the slide.

The wall *f* is provided at the top with a plate *g*, which is arranged horizontally and secured to the top of the said wall by studs and nuts or other fastening devices, as at *h*. (See Figs. I, II, and VI.) The top plate *g* is preferably set into and snugly engages a recess *f'*, which is formed in the top of the wall *f* and extends longitudinally of the path of the slide and a suitable distance laterally of the said path. The plate *g* extends over and completely covers the plates *d* and *e* and closely overhangs the path of the slide, as at *g'*. The plate *g* forms, therefore, a guard arranged to exclude dust, dirt, &c., from between the plates *d* and *e*, from between the plate *e* and the wall *f*, and from between the plate *d* and the slide, and the walls of the recess *f'* prevent strain upon the securing devices *h* by any friction possibly occurring between the top of the slide and the under side of the slide-overhanging portion *g'* of the plate *g* during the operation of the slide, and obviously the portion *g'* of the plate *g* is instrumental in preventing upward displacement of the slide.

The vertically-adjustable plate *e* is provided upon its slide-facing side with two surfaces *e'*, which slope downwardly toward and face the path of the slide. The sloping surfaces *e'* are arranged a suitable distance apart longitudinally of the said plate. The laterally-adjustable plate *d* is provided on its back side with two surfaces *d'*, which slope down-

wardly toward the path of the slide and are arranged a suitable distance apart longitudinally of the said plate. The surfaces d' correspond with and face and are engaged by the different sloping surfaces e', respectively, of the plate e. It will be observed, therefore, that the plate e, having the sloping surfaces e', forms a wedge, which is arranged with its thicker portion lowermost and is interposed between the sloping surfaces of the plate d and the fixed wall f, and that an elevation of the wedge-forming plate e when the plate d is free to be readjusted laterally results in an actuation of the said plate d laterally toward the path of the slide, and the plate d when it has been properly adjusted relative to the said path is secured in the desired adjustment. The means employed for securing the laterally-adjustable plate d in the desired adjustment comprise not only the plate e and means which secures the said plate e in the desired adjustment, but also two vertically-arranged bolts k, which extend through holes g^2, formed in and extending vertically through the plate g (see Figs. I and III) into the said plate d, engaging correspondingly-arranged screw-threaded holes d^2, formed in the upper portion of the said plate d. (See also Fig. V.) The holes g^2 are elongated toward the path of the slide, as shown very clearly in Figs. I and III, to accommodate a readjustment of the plate d relative to the said path. Obviously, therefore, the side-bearing-forming plate d is rendered free to be readjusted or secured in the desired adjustment, according as the bolts k are loosened or tightened relative to the plate g, and the said plate d is drawn tightly against the under side of the plate g or loosened relative to the said plate g, according as the bolts k are operated to tighten or loosen them relative to the plate g.

The laterally-adjustable plate d is provided at its ends or a suitable distance apart longitudinally of the plate with two laterally-projecting flanges d^3, which are arranged preferably at right angles to the plate and extend across opposite ends, respectively, of the wedge-forming plate e. The inner sides of the flanges d^3, as shown in Figs. I and V, closely overlap vertical surfaces f^3, formed on the wall f, so as to prevent displacement of the plate d longitudinally of the path of the slide and relative to the wedge-forming plate e, and hence the said plate d cannot be displaced endwise by any possible friction between the plate d and the slide during the operation of the slide, and strain upon the bolts k is avoided by such friction, and the bed or its wall f is not worn by the ends of the said plate d.

The laterally-adjustable plate d is provided in the upper edge thereof and centrally between its ends with a recess d^4, which extends transversely of the said edge at right angles to the path of the slide and is engaged by a correspondingly-arranged tongue g^4, which is formed upon and depends from the under side of the slide-overhanging plate g and extends from within the recess d^4 over the wedge-forming plate e into the wall f, which is provided in the top thereof with a recess f^4, engaged by the said tongue. The mutually-engaging tongue g^4 and recess f^4 are instrumental in preventing displacement of the plate g longitudinally of the path of the slide and are consequently instrumental also in avoiding strain upon the devices employed in securing the said plate to the wall f, and the said tongue g^4 and the recess d^4 are instrumental in preventing displacement of the plate d longitudinally of the travel of the slide.

The wedge-forming plate e is provided centrally between its two sloping surfaces e', as shown more clearly in Fig. II, with a vertically-arranged stud l, which is screwed into or otherwise fixed to the upper edge or top of the said plate. The stud l extends upwardly and loosely through a correspondingly-arranged hole g^3, formed in the plate g. A nut m is mounted on the stud l at the top of the plate g, and obviously the stud l, and consequently the plate e, is elevated or lowered, according as the nut is turned in one direction or the other, and the plate e is tightened or loosened relative to the plate d, according as the said plate e is raised or lowered. Two vertical screws o extend into engagement with the top of the wedge-forming plate e and are arranged a suitable distance apart longitudinally of the said plate at opposite sides, respectively, of the stud l. The screws o extend into engagement with the plate e through correspondingly-threaded vertical holes g^5, formed in the plate g, and lock-nuts p are mounted on the said screws at and contiguous to the upper side of the plate g.

By the construction hereinbefore described it will be observed that withdrawal of the screws o upon loosening the lock-nuts p accommodates a lifting or raising of the plate e by properly manipulating the nut m to readjust the plate d, when the latter is rendered free to be readjusted relative to the path of the slide.

The upper portion of the wedge-forming plate e is enlarged in thickness, as at e^2, centrally between the sloping surfaces e' of the said plate, toward the plate d to accommodate the provision of the stud l, as shown in Figs. II and V, and the said plate d has its upper portion recessed, as at d^5, to accommodate the location of the said enlarged portion of the plate e.

What I claim is—

1. The combination, with a slide and a slideway engaged by the slide, a laterally-adjustable plate which forms one of the side walls of the said slideway and which is provided, upon its back side, with a surface which slopes toward the path of the slide in one direction, of another plate arranged at the said side of the aforesaid laterally-adjustable plate and adjustable longitudinally of the sloping sur-

face of the laterally-adjustable plate and provided, at its slide-facing side, with a surface also sloping in the aforesaid direction toward the aforesaid path and affording bearing to the sloping surface of the said laterally-adjustable plate, and means whereby the said plates are secured in the desired adjustment.

2. The combination, with a slide arranged to travel in a horizontal plane, a correspondingly-arranged slideway engaged by the slide and a laterally-adjustable plate forming one of the side walls of the said slideway and provided, upon its back side, with a surface which slopes downwardly toward the path of the slide, of means for securing the said laterally-adjustable plate in the desired adjustment; an upright plate arranged at the back side of the said laterally-adjustable plate and provided, at its slide-facing side, with a surface which slopes downwardly toward the aforesaid path and corresponds with and affords bearing to the sloping surface of the aforesaid laterally-adjustable plate, and means for securing the vertically-adjustable plate in the desired adjustment.

3. The combination, with a slide arranged to travel in a horizontal plane, a correspondingly-arranged slideway engaged by the slide and a laterally-adjustable plate forming one of the side walls of the said slideway and provided, upon its back side, with a surface which slopes downwardly toward the path of the slide, of means for securing the said laterally-adjustable plate in the desired adjustment, a vertically-adjustable upright plate arranged at the back side of the said laterally-adjustable plate and provided with a sloping surface which corresponds with and affords bearing to the sloping surface of the aforesaid laterally-adjustable plate; means for elevating the vertically-adjustable plate; means for securing the vertically-adjustable plate in the desired adjustment.

4. The combination, with a slide arranged to travel in a horizontal plane, a correspondingly-arranged slideway engaged by the slide and an upright plate which forms one of the side walls of the said slideway and extends longitudinally of and is adjustable laterally relative to the path of the slide, which plate is provided, upon its back side, with a surface which slopes downwardly toward the said path, of means for securing the said laterally-adjustable plate in the desired adjustment, means for preventing displacement of the said laterally-adjustable plate longitudinally of the aforesaid path, means for preventing upward displacement of the said laterally-adjustable plate, a vertically-adjustable upright plate arranged at the back side of the laterally-adjustable plate and provided with a sloping surface which corresponds with and affords bearing to the sloping surface of the laterally-adjustable plate, means for elevating the vertically-adjustable plate, and means for securing the said vertically-adjustable plate in the desired adjustment.

5. The combination, with a slide arranged to travel in a horizontal plane; a correspondingly-arranged slideway engaged by the slide and an upright laterally-adjustable plate which forms one of the side walls of the said slideway and extends longitudinally of and is arranged to afford lateral bearing to the path of the slide, of a stationary member arranged in a horizontal plane and extending over the said laterally-adjustable plate, there being a tongue-and-groove connection between the under side of the said stationary member and the upper edge of the said laterally-adjustable plate and arranged at right angles to the aforesaid path, and means for securing the said laterally-adjustable plate in the desired adjustment.

6. The combination, with a slide arranged to travel in a horizontal plane, a correspondingly-arranged slideway engaged by the slide and an upright laterally-adjustable plate which forms one of the upright side walls of the said slideway and extends longitudinally of the path of the slide and is provided in its upper edge with a recess which extends from side to side of the said plate, of a stationary member arranged in a horizontal plane and extending over the said laterally-adjustable plate and provided, upon its lower side, with a tongue depending into the aforesaid recess, and means for holding the laterally-adjustable plate in the desired adjustment.

7. The combination, with a slide arranged to travel in a horizontal plane, a correspondingly-arranged slideway engaged by the slide and a laterally-adjustable plate forming one of the side walls of the said slideway and extending longitudinally of the path of the slide, and provided, upon its back side, with a surface which slopes downwardly toward the aforesaid path, of a stationary plate arranged in a horizontal plane and extending over the said laterally-adjustable plate and provided with a vertical hole above the upper edge of the laterally-adjustable plate, which hole is elongated at right angles to the aforesaid path; a device extending through the said hole and instrumental in securing the laterally-adjustable plate to the said stationary plate; an upright vertically-adjustable plate arranged below the aforesaid horizontal stationary plate at the back side of the laterally-adjustable plate and provided with a sloping surface which corresponds with and affords bearing to the sloping surface of the laterally-adjustable plate, and means for securing the vertically-adjustable plate in the desired adjustment.

8. The combination, with a slide arranged to travel in a horizontal plane, a correspondingly-arranged slideway engaged by the slide and a laterally-adjustable plate forming one of the side walls of the said slideway and extending longitudinally of the path of the slide, and provided, upon its outer side, with a surface which slopes downwardly toward

the aforesaid path, of a stationary plate arranged in a horizontal plane and extending over the laterally-adjustable plate; an upright vertically-adjustable plate arranged below the aforesaid horizontal plate at the back of the laterally-adjustable plate and provided with a sloping surface which corresponds with and affords bearing to the sloping surface of the laterally-adjustable plate; a stud rigid with the vertically-adjustable plate, and extending loosely through the horizontal plate, and a nut engaging the said stud at the upper side of the horizontal plate.

9. The combination, with a slide arranged to travel in a horizontal plane and a correspondingly-arranged slideway engaged by the slide, of a stationary upright wall arranged a suitable distance laterally of the said slideway, a laterally-adjustable plate and a vertically-adjustable plate arranged between the said stationary wall and the path of the slide, said laterally-adjustable plate forming one of the side walls of the slideway and provided, upon its back, with a surface which slopes downwardly toward the aforesaid path, and having two flanges overlapping opposite ends, respectively, of the vertically-adjustable plate and extending loosely into the aforesaid stationary wall, and said vertically-adjustable plate being provided with a sloping surface which corresponds with and affords bearing to the sloping surface of the laterally-adjustable plate; means for vertically shifting the vertically-adjustable plate, and means for securing the vertically-adjustable plate in the desired adjustment.

10. The combination, with a slide arranged to travel in a horizontal plane and a correspondingly-arranged slideway engaged by the slide, of a stationary upright wall arranged a suitable distance laterally of the said slideway, a laterally-adjustable plate and a vertically-adjustable plate arranged between the said stationary wall and the path of the slide, said laterally-adjustable plate forming one of the side walls of the slideway and provided, upon its back side, with a surface which slopes downwardly toward the aforesaid path, and having two flanges overlapping opposite ends, respectively, of the vertically-adjustable plate and extending loosely into the aforesaid stationary wall, and said vertically-adjustable plate being provided with a sloping surface which corresponds with and affords bearing to the sloping surface of the laterally-adjustable plate; means for vertically shifting the vertically-adjustable plate; means for securing the vertically-adjustable plate in the desired adjustment; a stationary plate rigid with the aforesaid stationary wall and extending over the aforesaid plates, there being a tongue-and-groove connection formed between the said horizontally-arranged plate and the laterally-adjustable plate and arranged at right angles to the path of the slide, and fastening devices for securing the laterally-adjustable plate in the desired adjustment relative to the slide.

11. The combination with a slide arranged to operate in a horizontal plane, and a correspondingly-arranged slideway engaged by the slide, of a stationary wall arranged a suitable distance laterally of the said slideway; a laterally-adjustable plate and a vertically-adjustable plate arranged between the said wall and the path of the slide, said laterally-adjustable plate forming one of the side walls of the slideway and provided upon its back side with a surface which slopes downwardly toward the aforesaid path, and the said vertically-adjustable plate being provided with a sloping surface which corresponds with and affords bearing to the sloping surface of the laterally-adjustable plate; means for securing the vertically-adjustable plate in the desired adjustment and means for securing the laterally-adjustable plate in the desired adjustment, there being a flange formed upon and extending longitudinally of the slide and projecting in under the laterally-adjustable plate.

12. The combination, with a slide arranged to travel in a horizontal plane, and a correspondingly-arranged slideway engaged by the slide, of a stationary upright wall arranged a suitable distance laterally of the said slideway; a laterally-adjustable plate and a vertically-adjustable plate arranged between the said stationary wall and the path of the slide, said laterally-adjustable plate forming one of the side walls of the slideway and provided, upon its back side, with a surface which slopes downwardly toward the aforesaid path, and said vertically-adjustable plate being provided with a sloping surface corresponding with the sloping surface of and affording bearing to the laterally-adjustable plate; means for securing the vertically-adjustable plate in the desired adjustment; a plate rigid with the aforesaid stationary wall and extending over the aforesaid plates and closely overhanging the path of the slide, there being a tongue-and-groove connection formed between the said horizontally-arranged plate and the laterally-adjustable plate and arranged at right angles to the path of the slide, and means for securing the laterally-adjustable plate in the desired adjustment.

In testimony whereof I sign the foregoing specification, in the presence of two witnesses, this 29th day of September, 1902, at Cleveland, Ohio.

GEORGE W. GREENWOOD.

Witnesses:
C. H. DORER,
TELSA SCHWARTZ.