

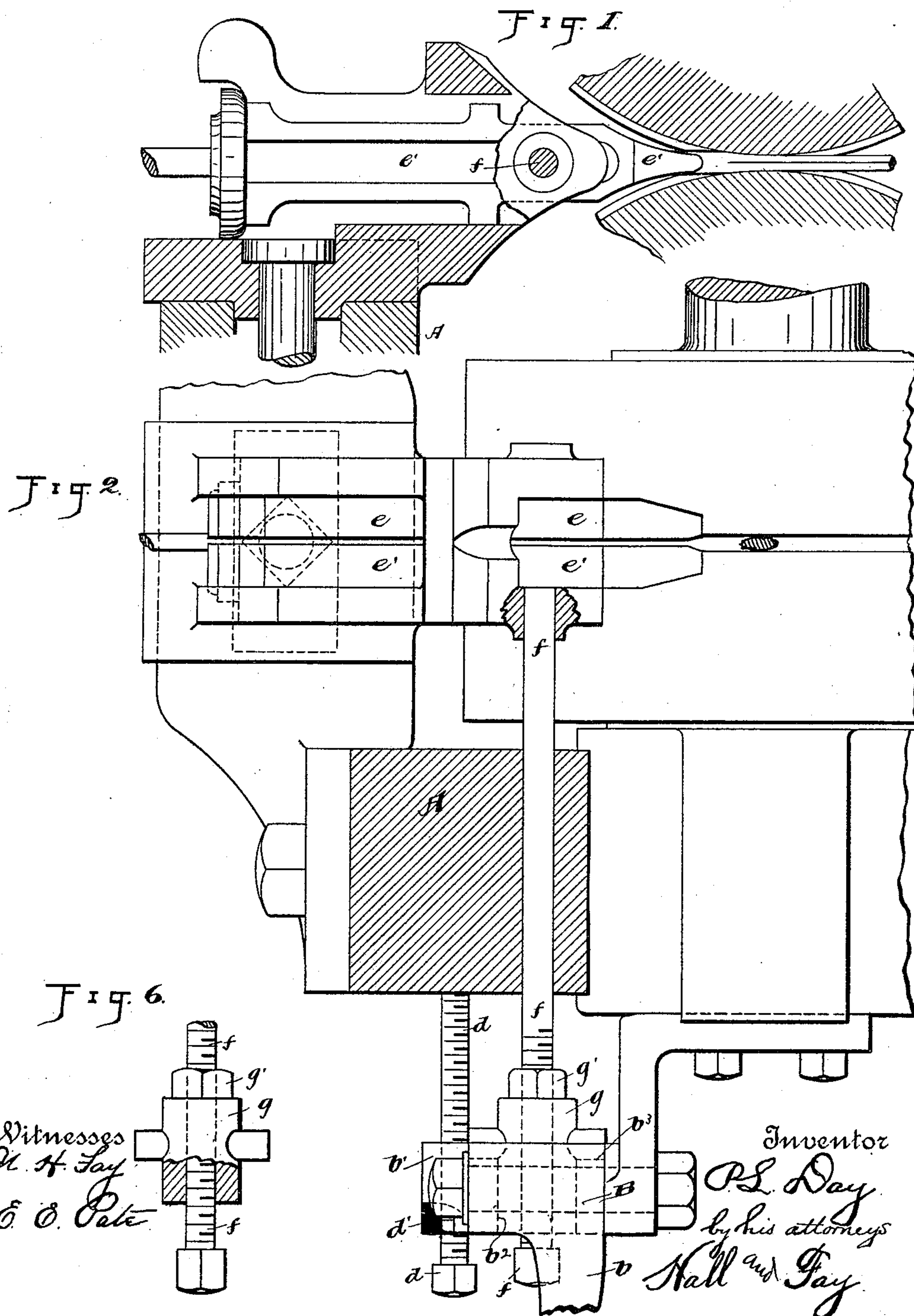
(No Model.)

2 Sheets—Sheet 1.

P. L. DAY.
GUIDE DEVICE.

No. 438,683.

Patented Oct. 21, 1890.



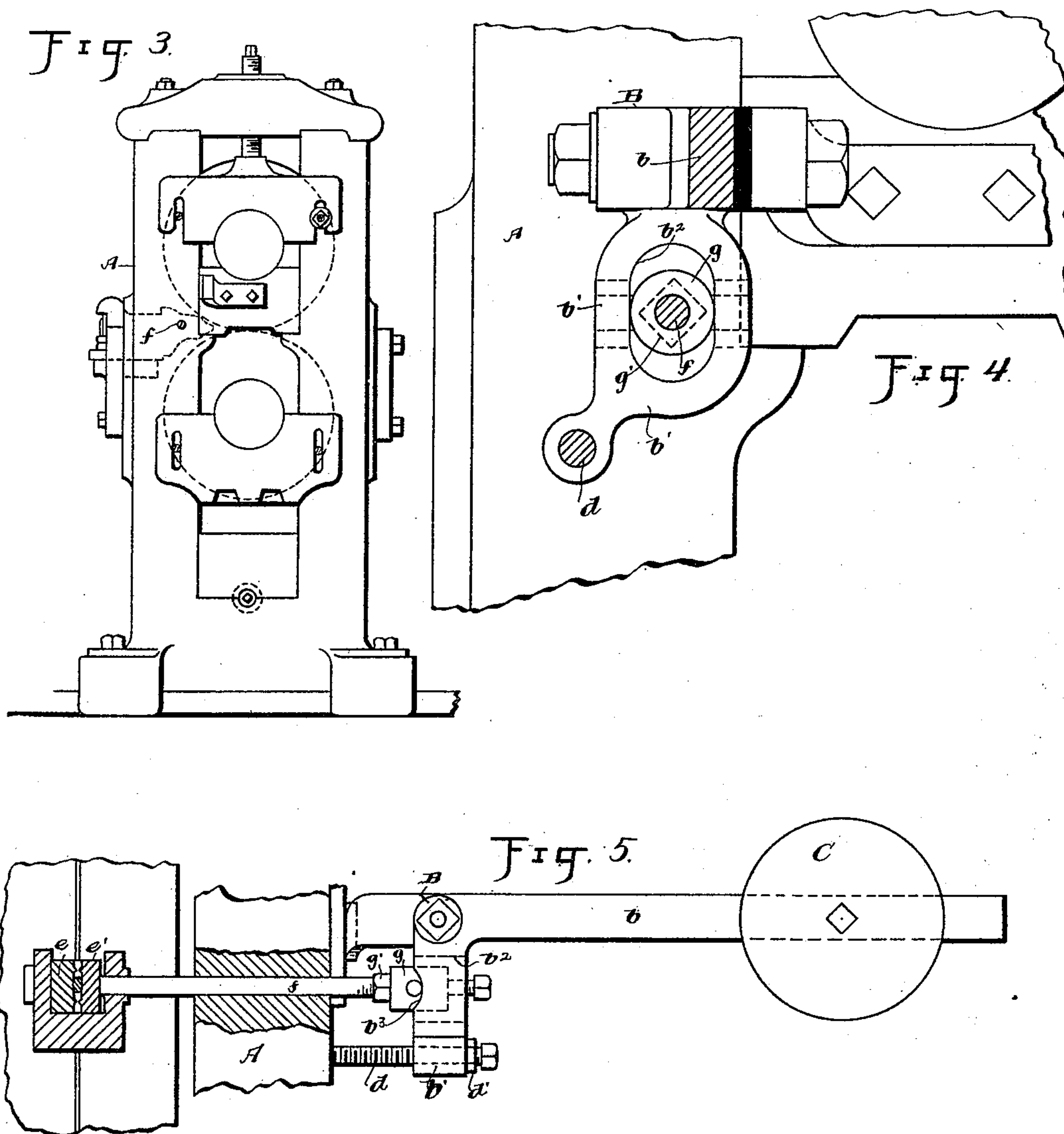
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Witnesses
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C. O. Pate

Inventor
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UNITED STATES PATENT OFFICE.

PATRICK L. DAY, OF CLEVELAND, OHIO.

GUIDE DEVICE.

SPECIFICATION forming part of Letters Patent No. 438,683, dated October 21, 1890.

Application filed May 24, 1890. Serial No. 352,984. (No model.)

To all whom it may concern:

Be it known that I, PATRICK L. DAY, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Guide Devices, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to guide devices, and is particularly applicable to the finishing-passes of a continuous roll-train.

The object of the invention is an improved form of device for holding the movable guide that directs the entrance of the rod into the finishing or other pass of a continuous roll-train.

It consists, essentially, of a weighted lever intermediately connected with the movable guide, by means of which a continuous, steady, and constant pressure is brought to bear on said guide without the intermittent vibratory motion frequently incident to spring-pressure.

It consists, further, of improved details relating to the adjustability of weight and pressure, and also to the adjustability of the inward thrust to be given to the guide.

Heretofore the movable guide has been held in position by means of springs; but in this form it was found that as the entering end of the rod passed between the guides the movable guide was frequently forced so far apart from the stationary guide, caused by the defective entering end of said rod, as to unduly contract the spring-holding device, and it is evident that when a spring is contracted it exerts a greater pressure than when it is in normal position. This difference of pressure may be entirely equalized and overcome by substituting for the spring a weight, and this my device accomplishes. Furthermore, the movement of the swiftly-passing rod caused such a vibration of the movable die, and through it the spring, as to produce an unsteadiness or intermittent action on the part of said spring, and this momentary relaxation of tension on the rod influenced the finish of the rod and also afforded an opportunity for the rods turning into an improper posi-

tion. The weight, however, overcomes this difficulty, inasmuch as it is at all times steady, positive, and constant in its action and yet sensitive enough readily to yield to the enlargements and defects of the rod and yet instantly resume its normal position when the defective portions have passed through.

Referring to the drawings, Figure 1 is a side elevation view of the guide and connecting parts, certain portions being in section. Fig. 2 is a plan view of the guides and holder, showing the connection of the guide-rod through the housing, certain portions of the housing being shown in section. Fig. 3 is an end elevation view of the housing, showing position of the guides in dotted lines and position of the guide-rod in full lines. Fig. 4 is an enlarged end elevation of the guide-holding mechanism, showing the means of support. Fig. 5 is a side elevation view of the bell-crank lever and connected rod, showing its position relative to the guide. Fig. 6 is a plan view, partly in section, of the trunnion-nut.

A is a roll-stand housing, to which is hinged or pivotally secured the bell-crank lever B, having the weight-arm *b*, on which is adjustably secured the weight C, and having the depending arm *b'*, provided with opening *b²* and gain *b³*. A stop-bolt or lock-bolt *d* is threaded through the lower extremity of the depending arm *b'*, and is provided with a lock-nut *d'*, that serves to hold it in fixed position after it has once been adjusted, and prevents possible displacement. This stop-bolt limits the inward thrust of the depending bell-crank, and when once adjusted, as the first rod passes through the roll-stand requires no subsequent care. Entrance-guides, respectively *e e'*, are located in usual position to guide the rod between the rolls, the latter guide *e'* is movable, and guide-rod *f*, that passes through suitable openings in roll-stand housings, has bearing at one extremity against said movable guide. The outer extremity of said rod passes loosely through the opening *b²* in the bell-crank, and threaded on said outer extremity is the trunnion-nut *g*, that has bearing against the walls of gain *b³*. A lock-nut *g'* prevents displacement of said trunnion-nut.

The operation of the device is apparent from

the drawings. The pressure that it is desired to exert against the movable guide may be adjusted to any desired degree by moving the weight C on the bell-crank, and the exact extent of the inward thrust it is desired to have the bell-crank exert against the rod *f*, and through it to the guide *e'*, may be definitely measured by the lock-bolt *d*. So, too, the trunnion-nut may be adjusted to and fro on the rod *f*, as may be desired, to bring it into proper relation to the depending bell-crank arm, with due regard to the proximity it is desired that guide *e'* should hold relative to guide *e*.

By reason of the increased steadiness with which the guide is held in position by the weight I have found in practice that the dies can be made more shallow than was possible when a spring was used, so that when the proper gage for the rod is effected between them their contingencies, flattened faces, will be away from each other, and as the guides wear away they may be moved nearer together. This obviates the necessity of renewing them so frequently as was requisite when a spring-holding device was used.

The stop-bolt limits the action of the lever in the length of its movements, thus gaging the dies. As the dies wear, the stop-screws may be loosened, so as to again fetch them to the proper gage by reason of a greater movement of the lever. Likewise the size of obstruction which shall be allowed to pass without affecting the lever can be determined by the adjustment of the die-bolt and thus maintained.

The foregoing description and accompanying drawings set forth in detail mechanism embodying my invention. Change may be made therein provided the principles of construction respectively recited in the following claims are employed.

I therefore particularly point out and distinctly claim as my invention—

1. In a guide-holding device, the combination, with a movable guide, of a weight connected therewith and adapted to move said guide toward its companion guide, substantially as set forth.

2. In a guide device, the combination, with a pair of guides, of a weighted lever adapted to engage with one of said guides and move it toward its companion guide, substantially as set forth.

3. In a guide device, the combination, with a guide, of a pivotal weighted lever operatively connected therewith, substantially as set forth.

4. In a guide device, the combination, with a guide, of a pivotal weighted lever provided with an adjustable weight and operatively connected with said guide, substantially as set forth.

5. In a guide device, the combination of a

movable guide, a weighted lever operatively connected therewith, and a stop adapted to limit the movement of said weighted lever, substantially as set forth.

6. In a guide device, the combination of a movable guide, a rod engaging therewith, and a pivotal lever engaging with said rod and adapted to move the same, substantially as set forth.

7. In a guide device, the combination of a pivotal bell-crank lever provided with an adjustable weight, a stop connected with said bell-crank, a movable guide, and a rod engaging at one extremity with said guide and having its opposite extremity connected with said bell-crank, substantially as set forth.

8. In a guide device, the combination of a weighted lever, a movable guide connecting therewith, and an adjustable stop also connected with said lever, substantially as set forth.

9. In a guide device, the combination of a hinged bell-crank lever, a movable guide connected therewith, and an adjustable stop having threaded connection with said bell-crank, substantially as set forth.

10. In a guide device, the combination of a bell-crank provided with an opening, a movable guide, and a rod engaging with said guide and loosely fitting in said bell-crank opening, substantially as set forth.

11. In a guide device, the combination of a bell-crank, a movable guide, and a rod engaging with said guide at one extremity and having a trunnion engaging with said bell-crank, substantially as set forth.

12. In a guide device, the combination of a bell-crank, a movable guide, and a rod engaging with said guide and having an adjustable trunnion threaded thereon and adapted to engage with said bell-crank, said bell-crank provided with an opening in which said rod fits, substantially as set forth.

13. In a guide device, the combination of a pivotal bell-crank provided on one arm with an adjustable weight and having its second arm provided with an opening and a gain, a stop threaded through said second bell-crank arm and having a lock-nut, a movable rod-guide, a rod engaging with said guide at one extremity and provided with a trunnion having threaded engagement therewith and provided with a lock-nut, said trunnion adapted to have engagement with the wall of said bell-crank gain, said rod projecting into said bell-crank opening, substantially as set forth.

In testimony that I claim the foregoing to be my invention I have hereunto set my hand this 22d day of May, A. D. 1890.

P. L. DAY.

Witnesses:

J. B. FAY,
E. E. PATE.