

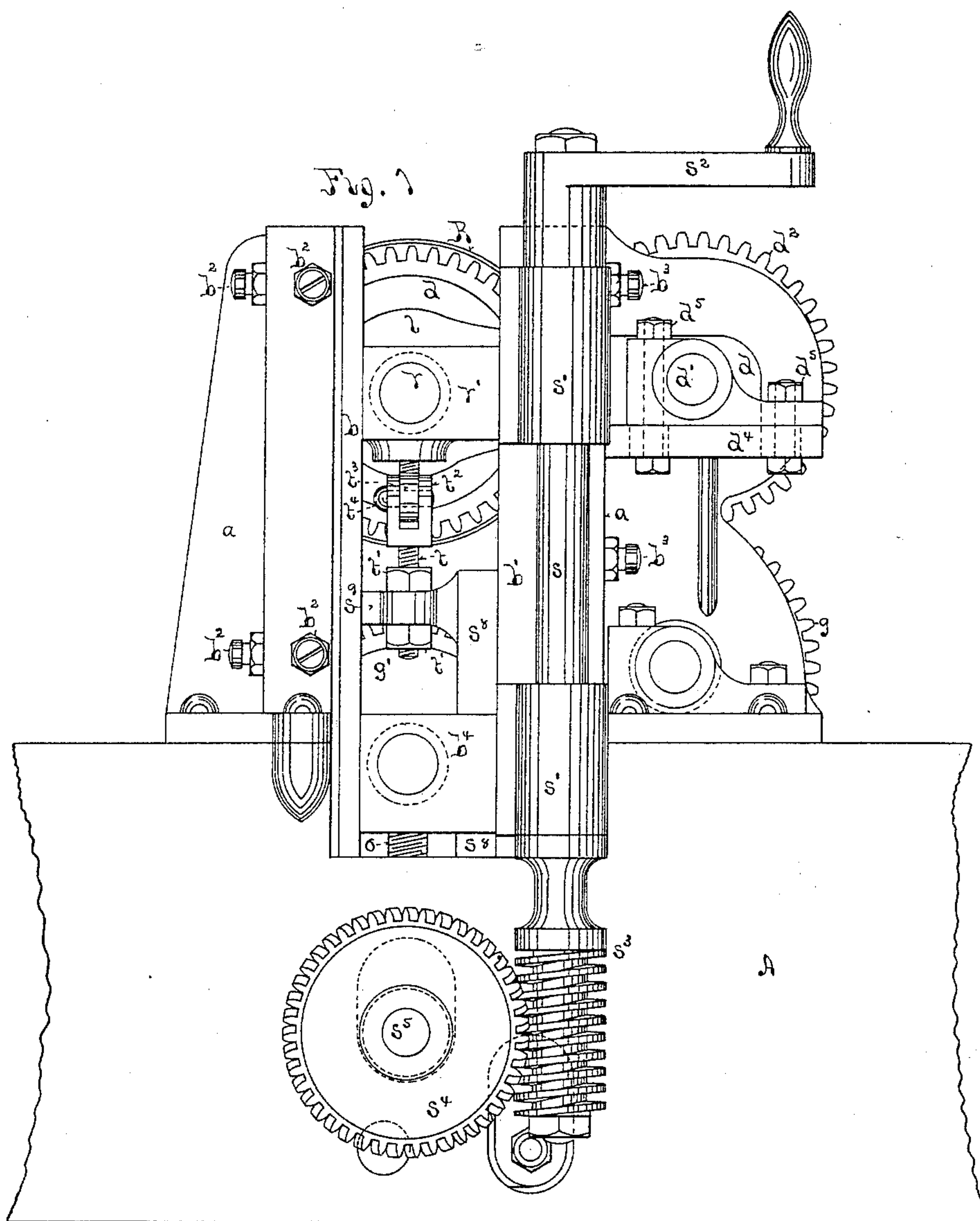
(No Model.)

4 Sheets—Sheet 1.

F. J. PLUMMER.
PLANING MACHINE.

No. 327,588.

Patented Oct. 6, 1885.



Witnesses

Wm. D. Brown
N. P. Ockington.

Inventor

Frank J. Munsey
By David Wallace
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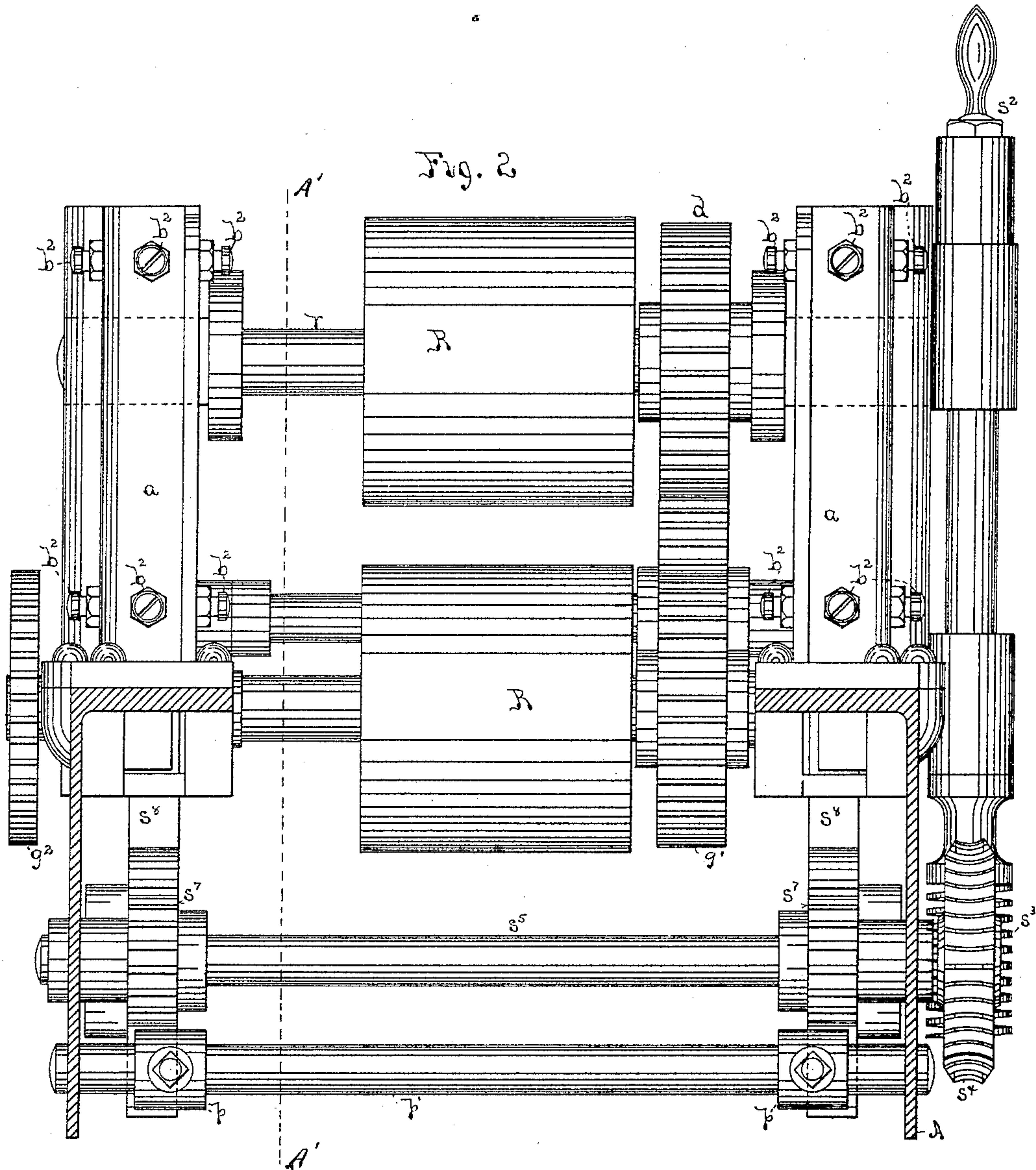
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Witnesses
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(No Model.)

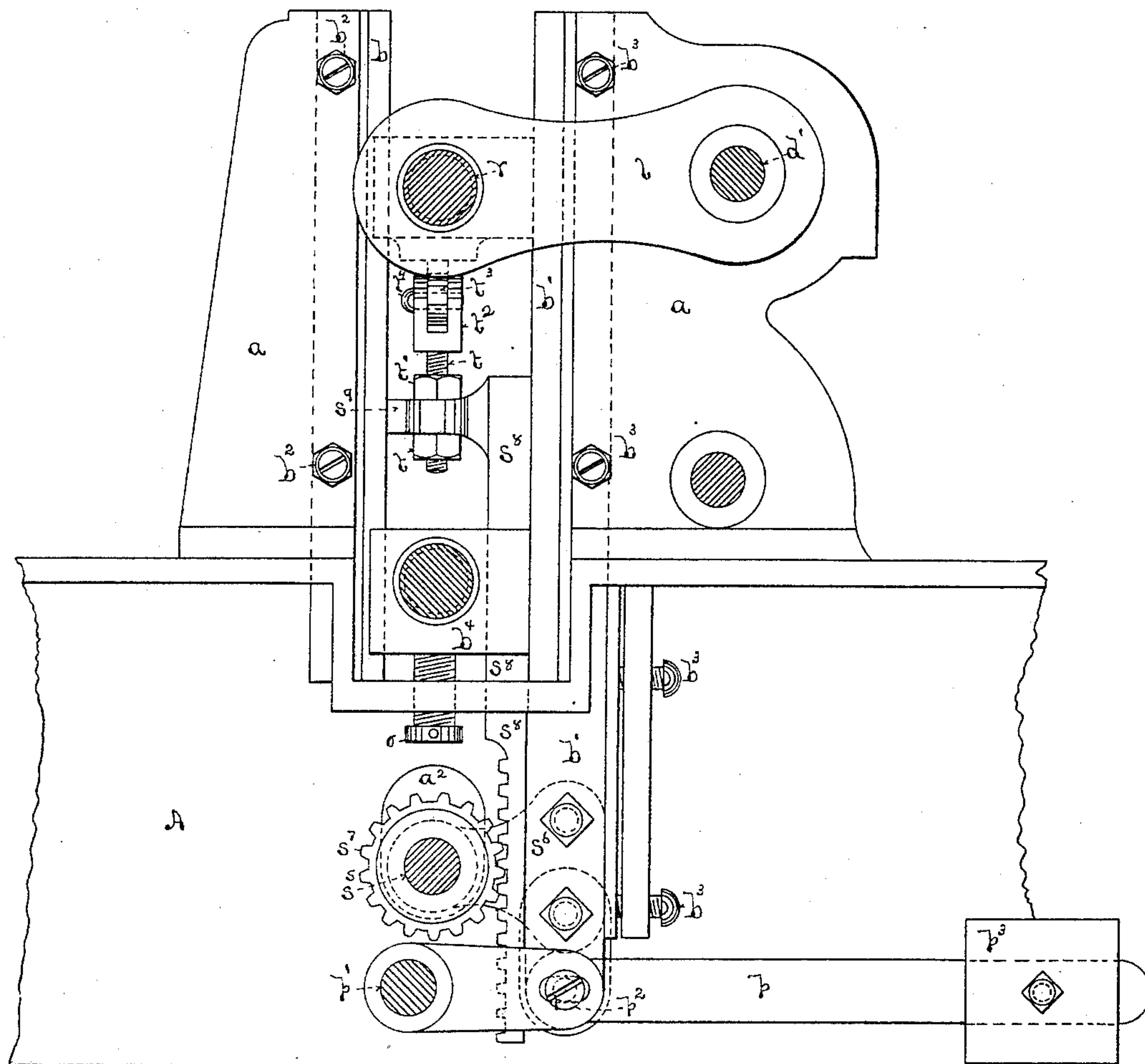
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Fig. 3



Witnesses

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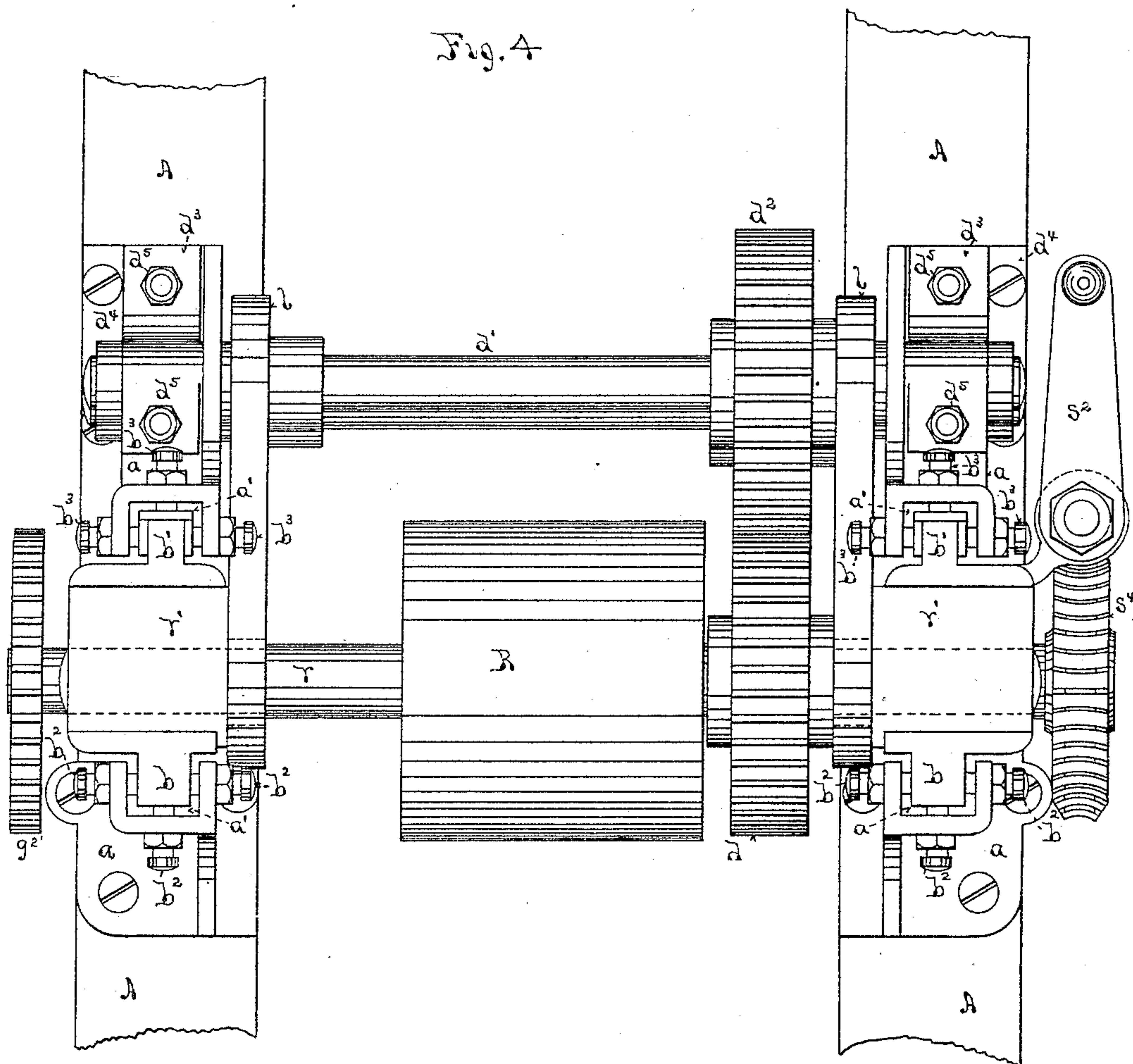
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PLANING MACHINE.

No. 327,588.

Patented Oct. 6, 1885.



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UNITED STATES PATENT OFFICE.

FRANK J. PLUMMER, OF BOSTON, MASSACHUSETTS.

PLANING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 327,588, dated October 6, 1885.

Application filed August 3, 1885. Serial No. 173,310. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. PLUMMER, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Planing-Machines, of which the following is a specification.

My invention relates to planing-machines; and it consists in certain improvements in the mechanism for adjusting and driving the feed-rollers of such machines, substantially as hereinafter described and claimed.

In the drawings, Figure 1 is a side view of a portion of a planing-machine constructed according to my improvements. Fig. 2 is an end view of Fig. 1. Fig. 3 is a longitudinal vertical section through the dotted line A' A' of Fig. 2. Fig. 4 is a top plan view of Fig. 1.

A is the frame of the machine which supports the feed-rolls and connected mechanism by which they are adjusted and operated. Upon the frame A on each side are bolted two uprights, *a a*, which are formed with vertical channels *a' a'* in their faces, which are opposite each to the other. These channels extend from the frame A to the top of each upward, and they are intended to adjustably support the guideways *b b'*, in which the boxes of the feed-rolls move up and down.

R is the upper feed-roll, supported upon a shaft, *r*, which extends through the boxes *r' r'* on each side of the frame. The boxes *r' r'* are capable of moving up and down in the guideways *b b'*, being fitted to the latter by a sliding fit. The guideways *b b'* are fitted into the channels *a'* of the uprights *a* loosely, and are adjusted in place in those channels by set-screws *b² b²*, which press against the guideways *b* and secure them rigidly in position. The object of this adjustment of the guideways in connection with the similar adjustment of the opposite guideways *b'* about to be described is to enable the upper feed-roll, R, to be brought into alignment with the lower feed-roll, R', horizontally in whatever position the upper feed-roll may be, elevated or lowered.

The guideways *b'* are adjusted in the channels *a'* of their uprights by similar set-screws, *b³ b³*; but these set-screws, instead of pressing directly against the guideways, are made to press against gibs resting against a portion of the guideways, so as to allow the latter to

have a vertical movement with the feed-roll R and its elevating and lowering mechanism, as hereinafter described.

Attached to one of the guideways *b'* of the feed-roll boxes on one side of the machine is a shaft, *s*, turning in bearings *s' s'* cast upon said guideway. This shaft is provided at the upper end with a crank and handle, *s²*, secured upon it by a nut and thread, and forming a collar which sustains it in its bearings, and at its lower end is provided with a worm, *s³*, which meshes with a worm-gear, *s⁴*, upon a shaft, *s⁵*. The latter extends transversely across the machine and is supported near each end in bearings *s⁶*, (see Fig. 3,) attached to the lower ends of the guideways *b'*, which project downward inside of the frame for a considerable distance below the feed-roll boxes.

Inside of the frame A, on each side, a pinion, *s⁷*, is attached to the shaft *s⁵*, and these pinions engage on each side with racks on vertical bars *s⁸*, which extend upward against the guideways *b'* through slots in the lower feed-roll boxes *b⁴*, through which they slide up and down freely. The shaft *s⁵* passes through elongated slots or holes *a²* in the frame of the machine to allow it to rise and fall with the guideways *b'*, as hereinafter described. Each of the rack-bars *s⁸* is provided with an ear, *s⁹*, projecting across the space between the guideways *b b'* above the box *b⁴* of the lower feed-roll, and through a vertical hole in each of these ears extends a screw-rod, *t*, provided with nuts *t'* above and below the ears, by which the rods can be adjusted up and down in the latter.

On the upper end of each of the screw-rods *t* is rigidly attached a bifurcated piece, *t²*, and from the lower side of each of the upper feed-roll boxes extends downward a tongue, *t³*, into the bifurcation of *t²*, where it is secured by a pivot, *t⁴*, thus forming a continuous attachment between the upper feed-roll boxes and the rack-bars *s⁸* on each side, which is capable of adjustment up and down by means of the nuts *t' t'*, so as to bring the axes of the feed-rolls parallel in a vertical direction, and which enables the operator to raise and lower the upper feed-roll in the guideways *b b'* by turning the crank *s²*.

On the inside of the frame on each side the lever p is connected to the former by a shaft, p' , extending across the frame, and the lever on each side passes by the lower end of the guideway b' , and is connected to the latter by a pivot, p^2 , working loosely in a longitudinal slot in the lever.

On the outer end of each lever p is attached a weight, p^3 . The levers p can therefore be raised and lowered, and carry up and down the guideways b' with them, the latter sliding in their gibs, before described. This permits the upper feed-roll, R , to rise and fall to accommodate itself to different thicknesses of lumber passing between the feed-rolls, and when the guideways b' rise or fall they carry up and down with them the shaft s^5 and vertical rack-bars s^8 , and boxes of the upper feed-roll connected therewith, or conversely the feed-roll carries up and down all these parts, raising the weights p^3 , because the worm s^3 prevents the shaft s^5 and its worm-gear s^4 from turning.

This mechanism forms a convenient means of adjusting the upper feed-roll at any desired distance from the lower one, and allows the latter to rise above that distance as a greater thickness of lumber may require.

To drive the feed-rolls, I attach to the shaft r of the upper feed-roll a gear wheel, d , and upon a shaft, d' , extending across the machine, I attach another gear-wheel, d^2 , meshing with the gear d . The shaft d' is supported upon the frame A in boxes d^3 d^3 on each side, which boxes are secured to flanges or shelves d^4 d^4 of the frame by bolts d^5 d^5 . These bolts pass through vertical holes in the shelves d^4 , which are elongated longitudinally of the machine, and the bolts are set up loosely, so as to allow the boxes d^3 to move back and forth upon the shelves. Two links, l l , on each side of the machine are made with holes through them, near their ends, through which the shafts r and d' are passed and fitted loosely to revolve freely therein, and these links serve to keep the shafts r and d' at the same distance apart at all times. Thus when the upper feed-roll, R , is raised or lowered by the mechanism hereinbefore described, or by thicker or thinner lumber passing under it, these links will move the shaft d' and its supporting-boxes toward or away from the guideways b' and keep the gears d and d^2 in position to mesh with each other. The gear d^2 meshes with the gear-wheel g , which in turn meshes with the gear-wheel g' upon the axis of the lower feed-roll, and the

latter is driven by a gear, g^2 , on its end, which projects beyond the frame of the machine. The movement of the gear-wheel d^2 horizontally with its boxes, as described, does not materially affect its engagement with the gear-wheel g , as I make the shelves d^4 slightly crowning, if necessary, and the lower faces of the boxes resting upon them of corresponding form where a great deal of motion is desired; but it will ordinarily be found unnecessary to do this.

The boxes b^4 of the lower feed-roll are raised and lowered by a screw, o , which passes through a shelf beneath them of the frame A , and permits them to be adjusted up and down with relation to the bed of the machine.

What I claim as new and of my invention is—

1. The combination of the worm-gear s^3 , provided with suitable mechanism for revolving the same, the worm-wheel s^4 , shaft s^5 , and pinions s^7 s^7 , attached thereto, and rack-bars s^8 s^8 , connected to the boxes r' r' of the upper feed-roll, substantially as described.

2. In combination with the vertically rising and falling guideways b' b' , the worm-gear s^3 , provided with suitable mechanism for revolving the same, the worm-wheel s^4 , shaft s^5 , and pinions s^7 s^7 , attached thereto, and rack-bars s^8 s^8 , connected to the boxes r' r' of the upper feed-roll, substantially as described.

3. The combination of the worm-gear s^3 , provided with suitable mechanism for revolving the same, the worm-wheel s^4 , shaft s^5 , and pinions s^7 s^7 , attached thereto, and rack-bars s^8 s^8 , adjustably connected to the boxes of the upper feed-roll by the screw-rods t t and nuts t' t' , substantially as described.

4. The combination of the feed-rolls R R' , their boxes r' b^4 , the guideways b b' , the channeled uprights a a , and the adjusting set-screws b^2 b^3 , substantially as described.

5. The combination of the vertically-moving upper feed-roll, R , and its shaft r , pinion d , links l l , and longitudinally-moving shaft d' and pinion d^2 , substantially as described.

6. The combination of the vertically-moving upper feed-roll, R , and its shaft r , pinion d , links l l , and longitudinally-moving shaft d' and pinion d^2 , attached thereto and revolving in bearings upon each side of the frame A , substantially as described.

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Witnesses:

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