

H. A. PERKINS.
 FEED ROLL CONTROLLING MECHANISM FOR WOOD PLANERS.
 APPLICATION FILED FEB. 11, 1909.

936,659.

Patented Oct. 12, 1909.

2 SHEETS-SHEET 1.

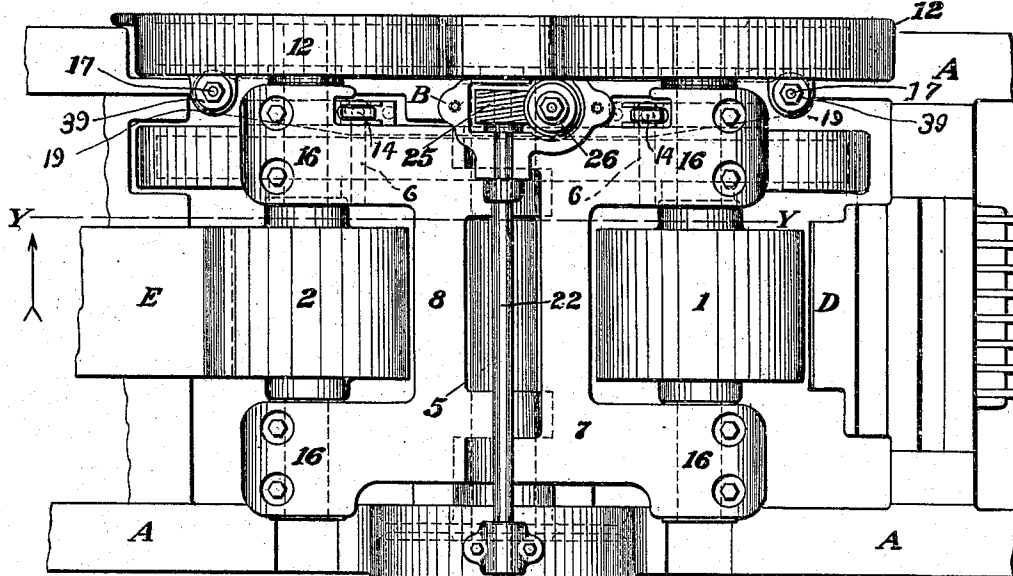


Fig. 1.

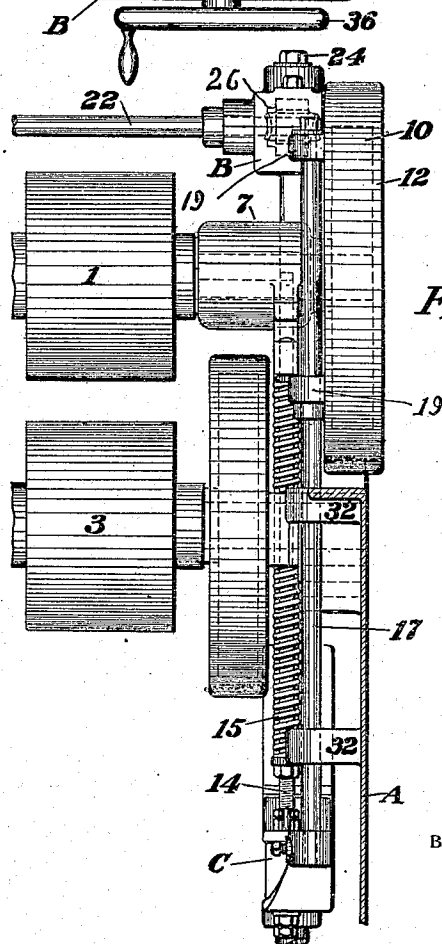


Fig. 3.

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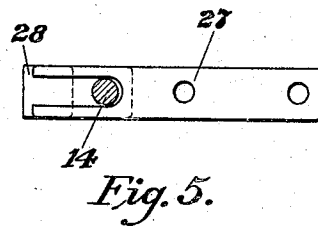
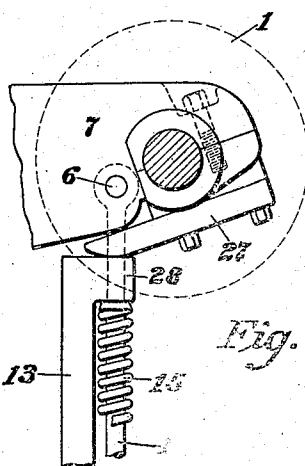
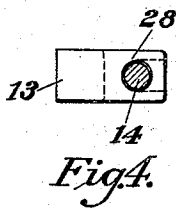
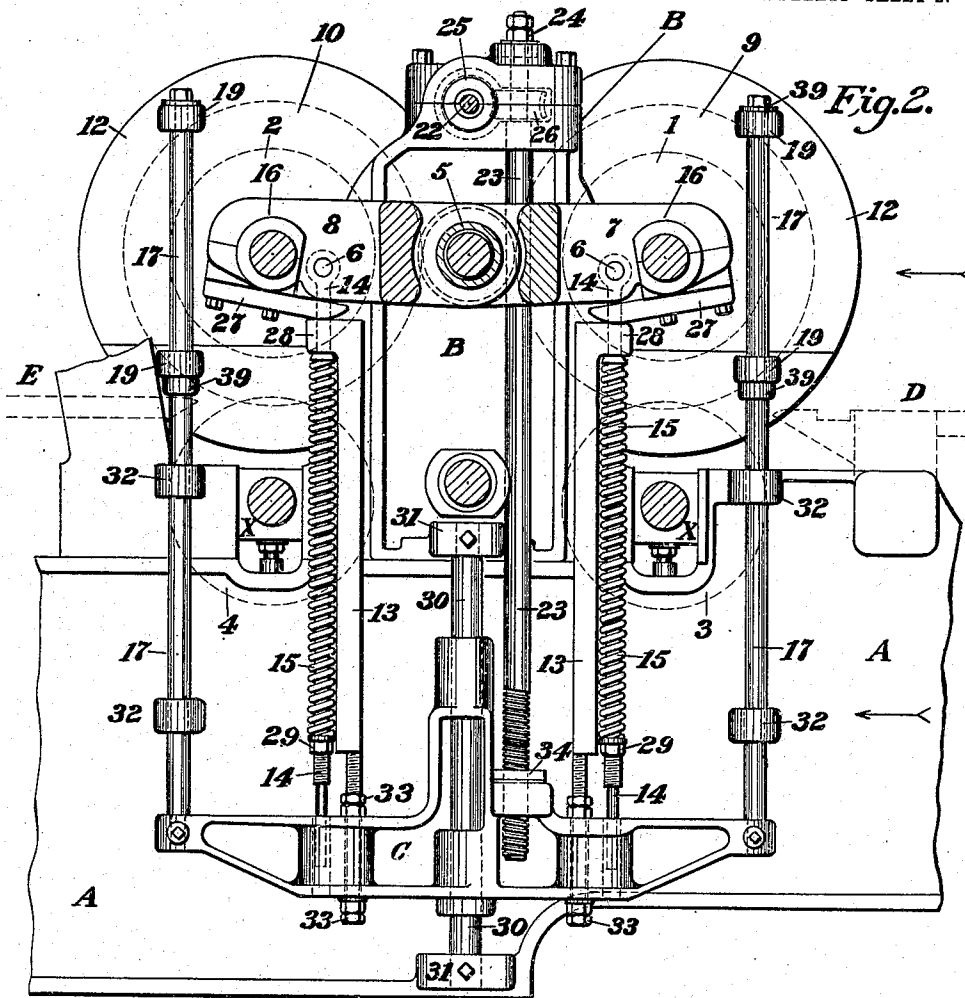
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UNITED STATES PATENT OFFICE.

HIRAM A. PERKINS, OF ROCHESTER, NEW YORK, ASSIGNOR TO AMERICAN WOOD WORKING MACHINERY CO., OF ROCHESTER, NEW YORK, A CORPORATION OF PENNSYLVANIA.

FEED-ROLL-CONTROLLING MECHANISM FOR WOOD-PLANERS.

936,659.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed February 11, 1909. Serial No. 477,440.

To all whom it may concern:

Be it known that I, HIRAM A. PERKINS, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented a new and useful Feed-Roll-Controlling Mechanism for Wood-Planers, of which the following is a specification.

In the accompanying drawings Figure 1 is a plan view of my improvement; Fig. 2 is a sectional elevation at the line *y y*, Fig. 1. Fig. 3 is a partial end elevation in the direction of arrows, Fig. 2. Figs. 4, 5 and 6 show details.

A is the frame or bed of a wood planing machine upon which are mounted in a suitable manner the boxes *a*, of feed rolls 3 and 4. Upper rolls 1 and 2 have boxes 16, in yokes 7 and 8, both of which latter swing from a common pivot 5, which is rigidly secured to the stands B, on the main frame. The rolls 1 and 2, thus are adjustable to different thicknesses of lumber. Suitable gears 9 and 10 are provided on these feed rolls for driving them. D is the table for supporting the in-coming stock and E is the planing bed under the cutting cylinder. The above parts are not new, having been described in other patents.

For the purpose of holding down the rolls 1 and 2, so as to press upon the lumber, I provide rods 14 which are pivoted at 6 to the roll yokes 7 and 8, and extend downward inside the main frame of the planer. On these rods are mounted spiral springs 15, the lower ends of which rest on collars 29, adjustably secured to the rods in any suitable manner.

C is a supporting bar located below the rolls and yokes, preferably near the base of the frame and extending longitudinally to receive parts described below.

13, 13 are supplemental rods which are adjustably attached to the supporting bar C, by means of check nuts 33, or by other equivalent construction. At the upper end of these supplemental rods there are wings or projections 28, which are either bifurcated (see Fig. 4) or bored to allow the spring rods 14 to pass through them: thus these projections 28 become shoulders against the under side of which springs 15 rest.

Lugs or bars 27 formed upon or attached to the roll yokes 7 and 8 rest upon the top of the projections 28, and they are also bifurcated to admit the spring rods as indicated in Fig. 5.

For the purpose of adjusting the upper feed rolls and their supporting bar C, I provide a screw shaft 23, which is threaded in the bar C at 34, and has a bearing in the upper part of the roll stand B. A collar or check nut 24 holds the screw in position against the downward pull of the bar C, rolls and roll yokes, all of which are very heavy. Screw 23 is revolved when required by means of worm wheel 26, worm 25, shaft 22, and hand wheel 36, Figs. 1 and 2, the worm wheel being secured to the screw and the worm and hand wheel to the shaft 22.

It will be observed from the foregoing description of roll adjusting mechanism that by the use of two rods 13 and 14 for each roll, one of which is attached to the roll yoke and the other to the supporting bar, a very long spring 15 can be used on the rod 14, shouldering against the other rod, giving a nearly uniform pressure on the rolls, even though the variation in thickness of the lumber may be 2 in. or 3 in., which sometimes happens; and further, that this spring by its unusual length becomes practically indestructible.

The lugs 27, Figs. 1 and 6, may be formed on the roll yokes 7 and 8, but preferably they are made separate and bolted thereto, or to the roll box as indicated in Fig. 6, in which the roll box and roll are shown in their extreme vertical position. Where this lug comes in contact with the ear 28 of the supplemental rod 13, it is curved on its bearing face with a radius struck approximately from the center of pivot 6. The object of this is to avoid increasing the tension of the springs 15 as the roll yokes are adjusted from lowest to the highest position, so that the roll pressure is practically uniform on all thicknesses of stock.

I prefer to inclose the driving gears 9 and 10 on the roll shafts as provided in my application for patent for feed mechanism, Serial No. 465,307; and 12, Figs. 1 and 2 and 3, represents the casing for the upper feed roll gears. As these gears adjust vertically with

the rolls, I prefer to adjust the casing also, and I provide therefor rods 17, Figs. 1, 2, 3, which are secured in extensions of the supporting bar C, and also to ears 19 attached to the upper and lower sections of the casing 12. Nuts or collars 39, secure the two parts of the casing together and the rods 17 thus support both; when the rolls are adjusted by means of the screw 23 the casing moves with them.

The supporting bar C may be guided in its adjustment by any suitable vertical ways, but I prefer to mount it on a shaft or bar 30, which is secured to the frame in bosses or sockets 31, and is fitted to bearings in the supporting bar, permitting the latter to move freely thereon.

I have shown roll yokes and boxes adjustable upon a fixed pivot or center, but it will be seen that my improved system of controlling the rolls with two rods and a long tension spring is equally applicable to roll boxes or yokes which adjust on ways or in guides either vertically or inclined to the horizontal line of feed, and the same is true of the gear casing 12, and its supporting rods.

In the drawings I have shown my improved roll controlling mechanism as applied to one end only of the roll yokes, but I do not limit my invention in this respect, because it is equally applicable to planers in which the rolls are held at both ends by pressure devices.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a wood planer, the combination with a frame, of an adjustable upper feed roll, a box for carrying the same, a spring carrying rod attached to the roll box, a spring thereon arranged to hold down the roll, a supplemental adjustable rod arranged to sustain the roll box, a support below the rolls to which the supplemental rod is secured, a projection on said supplemental rod at its upper end to take the thrust of the hold-down spring, operating substantially as set forth.

2. The combination in a wood planer, with a frame, of adjustable upper feed rolls, yokes with boxes for carrying said feed rolls, a supporting bar adjustable in the frame below the rolls and yokes, spring rods attached to the roll yokes and extending downward, springs on said rods, supplementary rods attached at their lower ends adjustably to the supporting bar and by their upper ends adapted to sustain the roll yokes, there being projections on said supplementary rods at their upper ends forming shoulders for said springs, whereby long range springs are made possible, for the purposes set forth.

3. In a wood planer, adjustable upper feed rolls, boxes for carrying said rolls, lower

feed rolls, a supporting bar below the lower rolls and boxes, spring carrying rods attached to the roll boxes, supplementary roll sustaining rods adjustably attached at their lower ends to the supporting bar and having projections to take the thrust of said springs, an adjusting screw engaging with the supporting bar and journaled on a stationary part of the frame, whereby the working position of the rolls may be determined for different thicknesses of lumber.

4. In a wood planer, adjustable upper feed rolls, boxes or yokes for carrying said rolls, lower feed rolls, a supporting bar below the rolls and boxes, spring carrying rods attached to the roll boxes or yokes, supplemental rods attached to the supporting bar, means for adjusting the tension of the springs and means for adjusting the supplemental rods vertically in the supporting bar.

5. In a wood planer, the combination of a frame, a lower feed roll supported in said frame, an upper feed roll, an adjustable box carrying said upper roll, an adjustable support carried by said frame near the lower side thereof, a rod connected to said box and extending to the lower part of the frame, a stop on said rod near its lower end, a spring on the rod pressing against the stop, a roll-box-supporting rod adjustably fixed to said adjustable support in the lower part of the frame to move therewith, the upper end of said roll-box-supporting rod having a bearing to support said box and also a bearing for the upper end of the spring.

6. In a wood planer, adjustable upper feed rolls, boxes for carrying said rolls, an adjustable supporting bar below said rolls, means for sustaining the roll boxes upon the supporting bar, rods secured to the latter and attached to the casings of the roll driving gears, whereby the vertical adjustment of the rolls carries with it the gear casings.

7. In a wood planer, adjustable upper feed rolls, pivoted yokes with boxes for carrying said rolls, a supporting bar below the rolls and yokes, spring carrying rods attached to the roll yokes, supplementary roll sustaining rods attached to the supporting bar, a curved surface on said yokes or boxes, against which the sustaining rod rests, whereby as the roll yokes swing on their pivot center, the tension of the hold down springs will not be affected.

8. In a wood planer, the combination with a frame, of lower feed rolls, upper feed rolls, a pivot mounted in the frame at its top, yokes carrying said upper rolls and supported on said pivot, an adjustable support on the frame near the bottom thereof, a separate auxiliary rod for supporting the outer end of each yoke, said auxiliary rods being mounted on said adjustable support, spring carrying rods connected to the yokes

and extending to said adjustable support, springs on said rods, spring abutments on said rods adjacent to said adjustable support, and an abutment on each of the auxiliary rods at the top for the upper ends of the springs.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

HIRAM A. PERKINS.

Witnesses:

G. C. SOUTHARD,
F. H. CLEMENT.