

(No Model.)

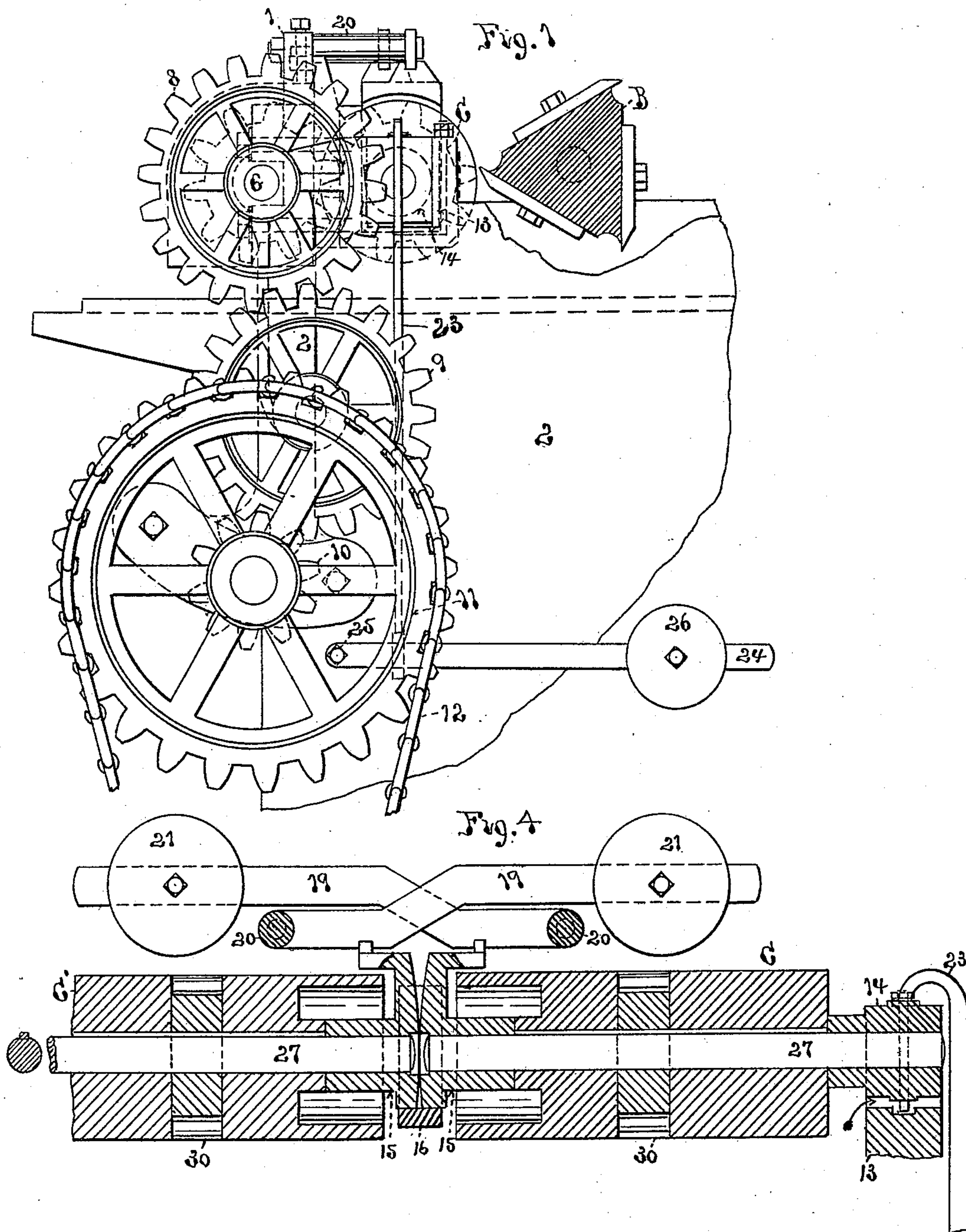
2 Sheets—Sheet 1.

J. R. THOMAS.

ROLLS FOR PLANING MACHINES.

No. 397,151.

Patented Feb. 5, 1889.



WITNESSES:

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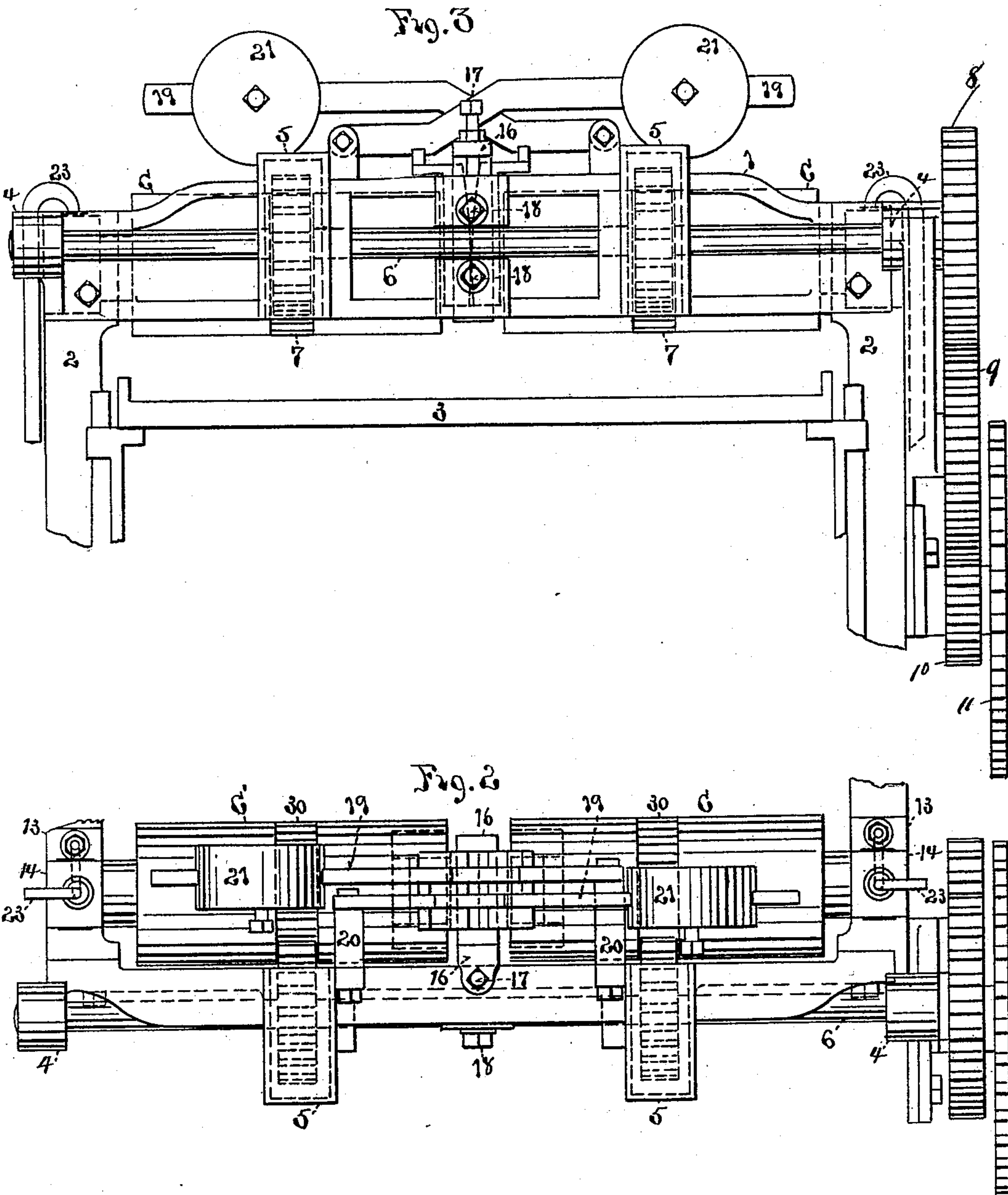
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UNITED STATES PATENT OFFICE.

JOHN R. THOMAS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE S. A. WOODS MACHINE COMPANY, OF MASSACHUSETTS.

ROLLS FOR PLANING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 397,151, dated February 5, 1889.

Application filed February 27, 1888. Serial No. 265,435. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. THOMAS, of Boston, in the county of Suffolk and State of Massachusetts, have invented a certain new and useful Improvement in Rolls for Planing-Machines, of which the following is a specification.

My invention relates to feed-rolls for planing and similar machines; and it consists in certain new and improved constructions and combinations of the several parts and connections of the same, substantially as herein-after described and claimed.

In the drawings, Figure 1 is a side elevation of a portion of a planing-machine with a part of the frame broken away, and having the feed-rolls constructed according to my improvement. Fig. 2 is a top plan view of the rolls, roll-frame, attachments, and driving-gearing. Fig. 3 is a side elevation of the same. Fig. 4 is a longitudinal central section through the feed-rolls.

2 is the frame of the machine.

B is the planing-cylinder provided with knives to dress the lumber.

C C' are the feed-rolls which carry the lumber through the machine. These feed-rolls are of the kind known as "double" rolls, placed end to end and intended for duplex planing-machines, in which two boards of different thickness are sent through the machine at once to be dressed. In order to sustain the rolls in position and allow them to yield separately, a frame, 1, is bolted each side of the machine-frame 2 2. This frame 1 is cast with extensions 4 4 and 5 5 on one side of it, which form bearings for the shaft 6, which passes through them parallel to frame 1. The two middle extensions, 5 5, are hollowed out internally to receive gears 7 7, which are attached to the shaft 6 by a spline and feather in the usual way, and these gears project through slots in the face of frame 1 adjacent to the feed-rolls C C'. The extensions 5 5 thus form housings for the gears and prevent chips, &c., from getting into their teeth. The shaft 6 has the gear 8 attached to its outer end. Gear 8 is driven by gear 9, mounted upon a stud projecting from the side of the frame, and gear 9 is driven by pinion 10, attached to sprocket-wheel 11, both

being mounted upon another stud projecting from the side of the frame, the sprocket-gear being driven by the chain 12 from a suitable counter-shaft.

On the sides of the machine are two rectangular-shaped holders, 13 13, which receive the boxes 14 14 upon the outer ends of the feed-roll shafts, respectively. The boxes 15 15 upon the inner ends of the feed-roll shafts, Fig. 4, are sustained as follows: A strap, 16, is bent so that one end is horizontal over frame 1, and through this end is tapped the vertical set-screw 17. Thence strap 16 extends vertically downward between the boxes 15 and the face of frame 1, to which it is secured by screw-bolts 18 18, which pass through holes in frame 1 of enough larger diameter vertically than themselves to allow the strap to be adjusted up and down by the set-screw 17, as desired. Thence strap 16 passes horizontally underneath and up on the other side of the boxes 15 15, thus forming a holder for them of rectangular form, in which they are free to slide up and down independently of each other. Each of these boxes has an L-shaped projection extending outward transversely from its upper end and thence upward, upon which the lever 19 rests, pressing it down into the holder 16. Each lever 19 is pivoted to an arm, 20, projecting outward from frame 1, and has a weight, 21, secured by a set-screw and sliding upon its outer end to press it downward, as desired. The inner ends of the feed-rollers are thus compressed upon the boards.

Resting upon the top of each of the outer feed-roll boxes, 14, is the bent-over end of a rod, 23, which rod extends downward alongside of the frame, and is attached at its lower end to a lever, 24, Fig. 1, pivoted to the frame at 25, and having a weight, 26, sliding upon its outer end, to which it is secured by a set-screw. The pressure upon the outer end of each feed-roll can thus be adjusted to correspond with that upon its inner end. Each feed-roll C or C' is attached by a spline and feather to its shaft 26, upon which it revolves freely in its boxes 14 15.

Midway between the ends of each feed-roll gear-teeth 30 are formed around its periphery corresponding to the teeth of gear-wheel 7, and opposite to and meshing with the latter,

These gear-teeth are formed by cutting away the substance of the roll between them; and I prefer to have their outer ends coincide with the surface of the roll, although this is not absolutely essential, as they may be below the latter. Each roll being thus driven at a place upon its periphery between its ends, there is an absence of that tendency to twist which arises from driving it at one end, because the board passing under the roll comes in contact with it nearer to the point where the strain of the driving-gear is applied. In case the board comes in contact with the roll on both sides of its gear-teeth 30 in passing under it, the strain of the board on one side tends to equalize that upon the other.

As represented in the drawings, the driving-shaft 6 and its roll-driving gear 7 are placed upon the feed-in side of the feed-roll, and consequently the direction of revolution of the gear 7 tends to bind the roll harder upon the board, thus requiring less weight to be applied to the roll to hold it down. This binding action of the gear becomes greater as the board drives harder through the machine, thus automatically increasing the compression thereon.

The rolls C C' rise only a sufficient distance to accommodate the varying thickness of the lumber, and not sufficient to carry the gears 30 out of engagement with the driving-gears 7 7.

What I claim as new and of my invention is—

1. The combination, in a planing-machine, of a feed-roll, C, provided with the gear 30 around its periphery intermediate between its ends, and having the bearing-surface of the roll upon each side thereof, and the shaft 6 and its gear 7, engaging with gear 30 and driving the roll, substantially as described.

2. The combination, in a planing-machine, of a feed-roll, C, provided with the gear 30 around its periphery intermediate between its ends, and having the bearing-surface of the roll upon each side thereof and held in guideways which allow it to rise and fall to accommodate itself to the varying thickness of the lumber, and the shaft 6 and its gear 7, placed alongside of the roll in position to engage with gear 30 and allow the roll to rise and fall past the same, substantially as described.

3. The combination, in a planing-machine, of a feed-roll provided with the gear 30 around its periphery intermediate between its ends, and having the bearing-surface of the roll upon each side thereof and held in guideways which allow it to rise and fall to accommodate itself to the varying thickness of the lumber, and the shaft 6 and its gear 7, placed on the feed-in side of the roll in position to engage with the gear 30 and bring a compression upon the roll moving past it by the direction of its rotation, substantially as described.

4. The combination, in a planing-machine, of a divided feed-roll, C C', extending across the bed of the machine, and having its sections independently supported at the ends and over the middle of the bed, and each provided with a gear, 30, around its periphery intermediate between its ends, and having the bearing-surface of the section upon each side thereof, and the shaft 6 and its gears 7 7, respectively engaging with gears 30 and driving the sections of the roll, substantially as described.

JOHN R. THOMAS.

Witnesses:

DAVID HALL RICE,
SOLOMON A. WOODS.