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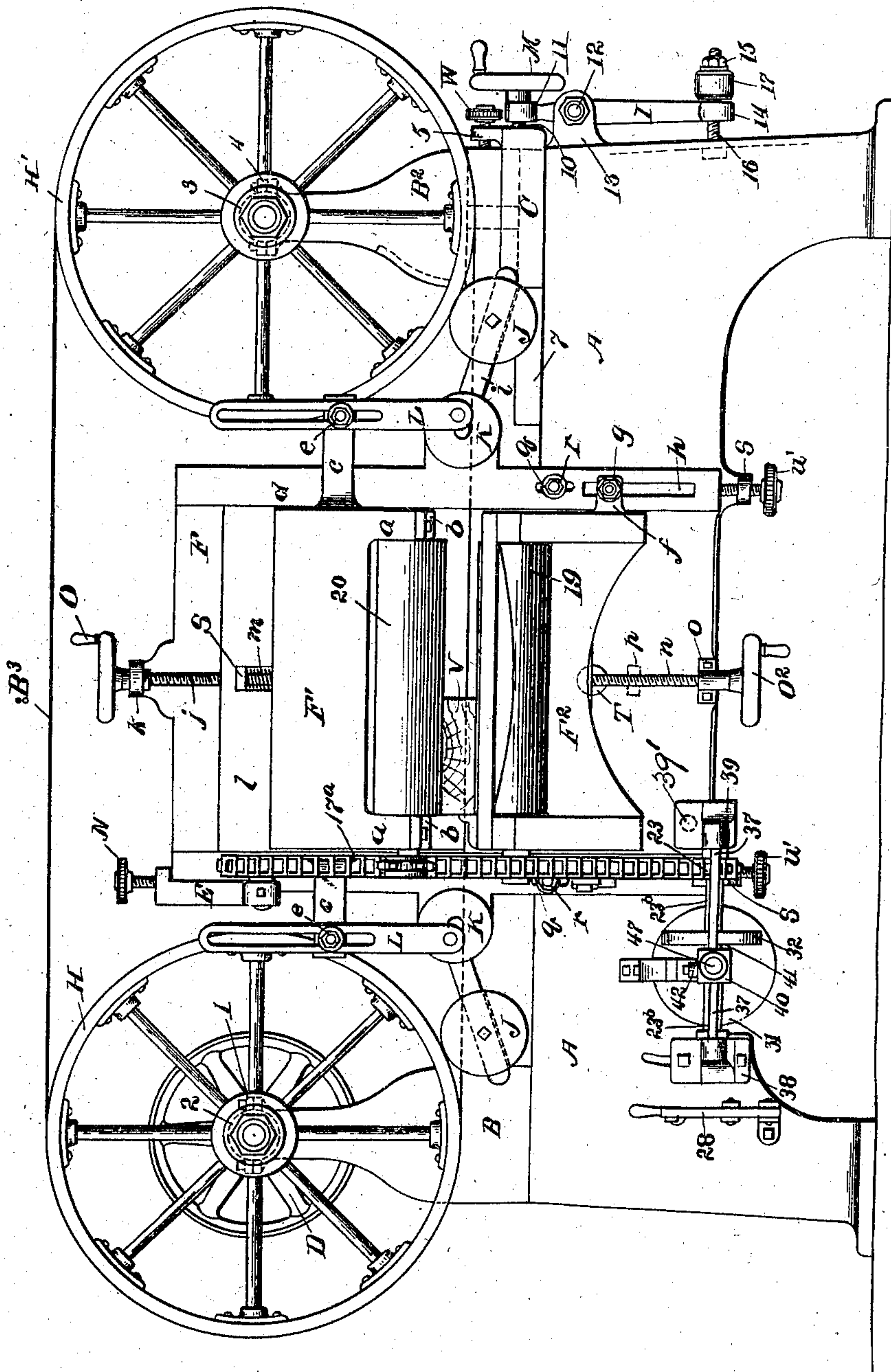
2 Sheets—Sheet 1.

A. HAZEWINKEL.
WOOD SAWING MACHINE.

No. 547,433.

Patented Oct. 8, 1895.

Fig. 1.



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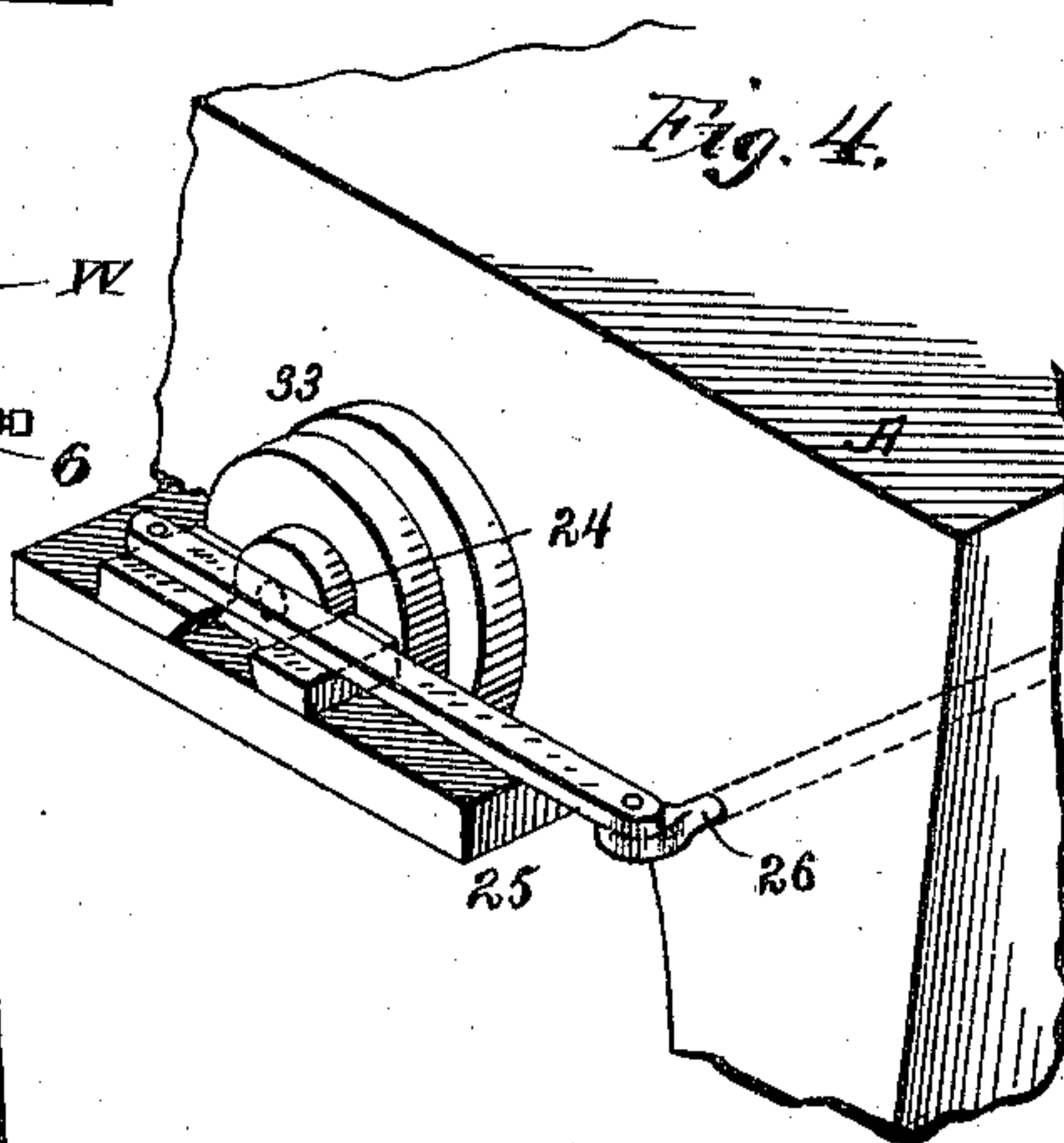
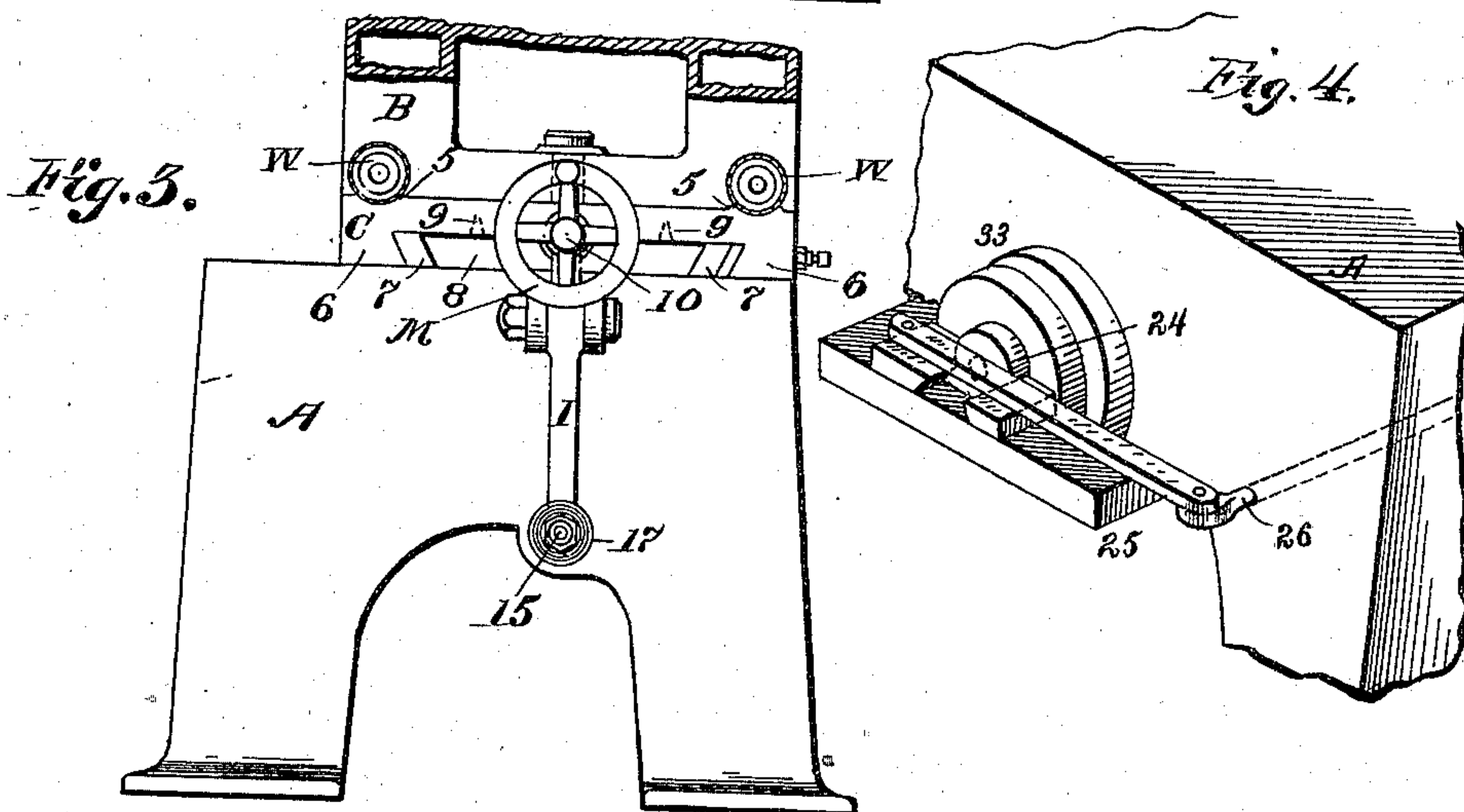
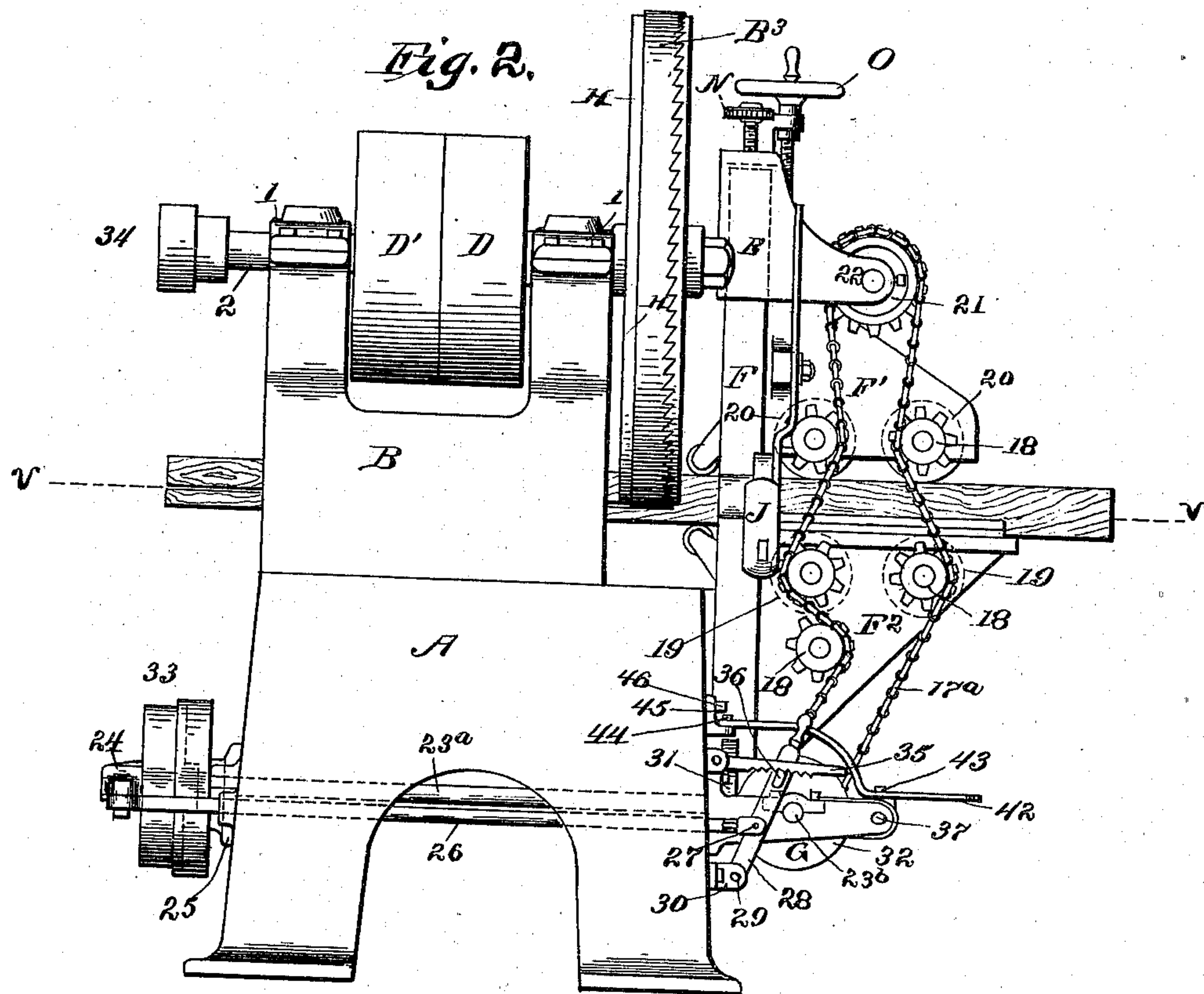
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UNITED STATES PATENT OFFICE.

ALBERT HAZEWINKEL, OF BENTON HARBOR, MICHIGAN.

WOOD-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 547,433, dated October 8, 1895.

Application filed November 12, 1894. Serial No. 528,571. (No model.)

To all whom it may concern:

Be it known that I, ALBERT HAZEWINKEL, a citizen of the United States, residing at Benton Harbor, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Wood-Sawing Machines; and I do 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 appertains to make and use the same.

This invention relates to wood-sawing machines; and it consists of a new and useful machine comprising a horizontal band-resaw for the purpose of sawing bevels and wide planks of all kinds, mechanism for actuating and adjusting the same and its supports, for operating and adjusting the machine, and in the general construction, as hereinafter set forth.

In the accompanying drawings, Figure 1 represents a front elevation of my improved machine. Fig. 2 represents a left-hand end elevation thereof. Fig. 3 represents a right-hand end elevation of the lower portion of the machine, which is shown as broken away and partly in section. Fig. 4 represents an enlarged detail view, in perspective, of a portion of the machine.

A represents the base or main frame of the machine.

B represents a stationary upright support within boxes 1, on which the shaft 2, carrying the band-wheel H, is supported.

D represents a tight and D' a loose pulley, through which, and through a belt or belts (not shown) connecting with any suitable source of power, power is transmitted to the machine.

B² is a longitudinally-adjustable upright support for carrying the other band-wheel H', said band-wheel H' being journaled on a shaft 3, journaled in boxes 4, said support B² being slidably mounted on a slide C, having upwardly-extending flanges or ears 5, through which are passed screws W, whereby said support B² may be adjusted to align the saw B³, which, as will be seen, is horizontally arranged around the two band-wheels independently of the slide or saw-tightener C. The saw-tightening slide C has bevel-faced feet or flanges 6, which embrace and slide along the bevel-faced ribs or ways 7. 8 represents a

block having upwardly-extending prongs 9 or their equivalent, which engage with the under face of the bottom of the slide C, and 10 represents an adjusting-screw having bearing in said block and provided with a hand-wheel M, by turning which latter in either direction said screw operates to longitudinally adjust said block 8 and the thereto-connected slide C, support B², and band-wheel H', and thereby adjust the tension on the band-saw B³.

I represents a lever having an eyed upper end 11, connecting with the screw 10 and rockingly journaled at 12 in ears 13, said lever I having an eyed lower end 14, which has adjustable bearing by means of a nut 15 on a screw 16, an elastic cushion 17 being interposed between said nut 15 and the lower end of said lever I to prevent jarring and maintain the proper tension on the saw.

F represents a vertically-disposed frame midway between the band-wheels, within or on which the frames or carriers carrying the plank-feeding rollers and the mechanism for actuating the same are supported.

F' represents the upper frame or carrier, within which the upper series of plank-feeding rollers 20—of which there may be any desired number—are journaled, the journals of said rollers 20 having bearing in the bottom flanges or legs *a* of said frame and being held in place by boxes *b*, as shown.

c represents arms mortised in the vertical sides *d* of the frame F, with which arms *c* are adjustably connected by hand-screws *e* or otherwise slotted slides or connecting-rods L, which at their lower ends are connected with a pair of eccentric-disks K.

F² represents the lower frame or carrier, within which the lower series of feed-rollers 19—of which there may be any desired number—are journaled. This roller-carrying frame F² has lateral arms *f*, which have slide bearing, by means of hand-screws *g* or their equivalent, in the slotted lower ends *h* of the legs *d* of the frame F. By this construction the respective roller-carrying frames F' and F² can be readily adjusted to permit of the rollers feeding timber of varying thicknesses.

J represents weights connected by connecting-rods *i* with the eccentric-disks K, the function of which is to draw the roller-carrying frames toward each other and exert pressure

upon the upper and lower series of feed-rollers, so as to insure the frictional contact of said rollers with the timber to be fed and the proper feeding of said timber.

5 j represents a vertical screw, which is operated by a hand-wheel O and has bearing in a lip or ear k and passes through the cross-bar l of and into engagement at its lower end with the upper roller-carrying frame F' , said screw
10 j working in a nut S , unturnably seated in a slot m , so that as said screw j is turned in the one direction or the other the frame F' and the upper series of feed-rollers carried thereby will be correspondingly either raised or
15 lowered. n represents another adjusting-screw, which has bearing in a box o , attached to the face of the base A and has bearing at its upper end against the under portion of the lower roller-carrying frame F^2 , O^2 representing a hand-wheel for operating said screw, and p a nut which is located on said screw, but with one face in contact with the face of the base A , so that said nut will remain stationary and form a stationary bearing for said
20 screw, the result being that as said screw n is turned in the one direction or the other it will either draw down or raise the roller-carrying frame F^2 .

q represents slots arranged vertically in the
30 respective legs d of the frame F , and r represents thumb-screws or their equivalents, by means of which, in connection with said slots q , said frame F is connected with said base A with capability of vertical adjustment
35 thereon.

U U' represent hand-screws having bearing in ears s , extending from the base A , by means of which said frame F may be vertically adjusted.

40 17^a represents the link-chain, which connects and drives the timber-feeding rollers 19 and 20. This chain, as clearly shown in Fig. 2 of the drawings, engages with cogs 18 on the outwardly-extending portion of one end
45 of the journals of said lower rollers 19 and upper feed-rollers 20, the upper end of said chain, which is endless, passing around a cog 21, journaled in an offset 22 of the chain-tightener E , while its lower end passes around
50 another cog-wheel 23, journaled on the shaft 23^b . The chain-tightener E has vertical slide bearing on the frame F and is provided with a vertical screw N , by turning which in either direction said tightener may be either
55 raised or lowered to either tighten the connection of the chain with the cogs on the feed-rollers or loosen such connection, and thus regulate the rotation of said rollers or, as desired, render the chain idle.

60 V represents a plank or board in position of being sawed.

23^a represents the sprocket-chain actuating-shaft, which passes transversely through the base or bed of the machine, as shown in Fig.
65 2 of the drawings, said shaft being at its rear end journaled in a box 24 on a frame 25 at the rear of the base A , said box 24 being slid-

ably mounted on said frame 25 and having connected therewith one end of a rod 26, which passes transversely through the base 70 A , the front end of said rod 26 being connected at 27 with a lever 28, which is pivotally journaled at 29 in ears 30. By reciprocating this lever 28 the sliding box 24 and the transverse shaft 23^a are reciprocated 75 transversely of the machine. On the front end of the shaft 23^a is mounted a friction-disk 31, which contacts with a friction-wheel 32 on the shaft 23^b . Motion being communicated to the shaft 23^a through a belt or band 80 (not shown) passing over the pulley 33 on the aforesaid shaft 23^a and the pulley 34 on the shaft 2 of the band-wheel II said friction-disk 31 will be revolved, and when said friction-disk 31 is in contact with the friction- 85 wheel 32 motion will thereby be communicated to the sprocket-chain-actuating shaft 23^a and the sprockets or cogs 18, and the feed-rollers 19 and 20 thereby rotated. By pushing the lever 28 inward or rearward the friction-disk 31 will be released from contact 90 with the friction-wheel 32, and consequently the cessation of rotation of the sprocket-chain and of the feed-rollers accomplished.

35 represents a rack-bar extending for- 95 wardly from the base A , which serves, in connection with a dog 36 on the lever 28, to hold said lever 28 in its relative positions of adjustment.

37 represents a rod having end bearing in 100 a pair of boxes 38 and 39, to be presently described, upon which rod 37 is mounted, with capability of sliding therealong, a slide-block 40, which is connected with an ordinary offset 41 on one side of the friction-wheel 32, 105 and 42 represents a lever attached at 43 to said slide-block 40 and at its rear end pivotally connected, as at 44, to a strap 45, which is hung at 46, with capability of vertical adjustment thereon, on the base A . By turning 110 this lever 42 laterally the slide-block 40 and the thereto-connected friction-wheel 32 are correspondingly laterally adjusted, so as to bring said friction-wheel into frictional contact with different portions of the face of the 115 friction-disk 31, whereby the speed at which the shaft 23^b and, consequently, of the sprocket-chain and of the feed-rollers is regulated. 47 represents a thumb-screw or its equivalent, by means of which the slide-block 120 40 and the friction-wheel 32 connected therewith are clamped in adjusted position. The boxes 38 and 39, within which the shaft 23^a and the rod 37 are journaled, are peculiarly arranged, so that in connection with the ver- 125 tical adjustability of the frame F , in which the feed-roller carriers F' F^2 are carried, the machine may be adapted for bevel-sawing as well as straight sawing of lumber. The box 38 is secured to the base A , so as to be verti- 130 cally adjusted thereon, while the box 39 has rotatable bearing-support at 39' in said base A . Now, when it is desired to saw lumber in the form of bevels instead of straight, the

thumb-screws *r r* are loosened, the hand-wheel *U* is then loosened, and the hand-wheel *U'* raised to the desired position. This action brings the frame *F*, which has rocking bearing at its bottom on the pin *T*, and the roller-carriers and rollers to a position of angularity or out of the horizontal, so that the boards to be sawed will be presented to the saw at sufficient angularity to insure their being sawed in bevel form. The box 38 is at the same time raised to a distance corresponding with the distance to which one leg of the frame *F* is raised, which act, as the box 39 turns on its pivot, brings the sprockets in alignment. The several nuts are then tightened and the several parts of the mechanism are then in position to saw lumber in bevel form.

By means of the construction and arrangement of parts hereinbefore described and the adjustability of the frames supporting and carrying the feed-rollers and the adjustability of the chain carrying and operating devices and of the saw-support saws of varying lengths can be readily employed, the alignment and adjustment of the saw readily accomplished, a saw horizontally arranged used, and boards of irregular shape and of great width sawed either in straight form or in the form of bevels. The feed-rollers are automatically adjustable to boards of varying thickness and are always maintained in frictional contact with the boards and thus secure the positive and regular feed thereof to the saw.

Having thus described my invention, what I claim is—

1. In a sawing machine, a vertical frame having pivotal bottom support and independently vertically-adjustable and side supports to adapt said frame to be both vertically and angularly adjusted, a lower feed-roller carrier having vertically adjustable bearings or supports in said frame, an adjusting screw adapted to raise and lower said carrier, an upper feed-roller carrier having vertically-adjustable side bearing supports, an adjusting screw and nut connected with said upper feed-roller carrier to vertically adjust the same and admit of the independent and automatic vertical adjustment of said carrier, substantially as and for the purpose set forth.

2. In a sawing machine, a vertical frame, upper and lower feed-roller carrying frames carried by said vertical frame and vertically adjustable independently thereof, eccentrics connected with said roller-carriers and weights and connecting rods connected with said eccentrics for weighting and drawing the feed-rollers to their work, and feed-rollers journaled in said carriers, substantially as and for the purpose set forth.

3. In a sawing machine, a frame having vertically-depending legs each having eared lower ends and a pair of vertical slots, thumb screws engaging with said ears and having end bearing against the base of the machine whereby either side of said frame may be in-

dependently adjusted vertically to support said frame at any angle, screws passed transversely through one pair of said slots into engagement with the base to clamp said frame in its vertically and angularly adjusted positions, upper and lower roller carriers carried by said frame and having outwardly-extending arms having vertically-adjustable bearing independently of the frame by screws in slotted side connections, feed rollers journaled in said carriers, sprocket wheels mounted on one end of said feed rollers, guide and actuating sprockets having bearing support above and below said roller-carriers, respectively, an endless sprocket chain connecting with said sprockets, a vertically-adjustable tightener connected with the upper guide sprocket and adapted to both tighten and loosen the chain connection with the sprockets on the feed rollers, and a shaft connected with suitable power and with the lower sprocket of the series for actuating said sprocket chain, substantially as and for the purpose set forth.

4. In a sawing machine, a vertical frame, upper and lower roller-carriers carried thereby and adapted to be independently vertically adjustable, feed-rollers journaled in said carriers, sprockets mounted on said roller journals at one end, a chain tightener and loosener, a chain carrying sprocket having bearing in said tightener, a chain-operating shaft having bearing in the base of the machine, a chain-operating sprocket mounted on said shaft, a friction-wheel mounted on said shaft, a friction disk, a transverse shaft connected with said friction disk, a frame located at the rear of the machine a box having slide bearing in said frame and connected with said transverse shaft, a rod and lever connected with said sliding box, and a lever and slide connected with said friction wheel, substantially as and for the purpose set forth.

5. In a sawing machine, a vertical frame having capability of both vertical and angular adjustment on the base of the machine, upper and lower feed-roller carriers supported in said frame and having independent vertical adjustment, feed-rollers journaled in said carriers, sprockets mounted on said roller journals, an endless sprocket chain, guide and operating sprockets for said chain, a chain tightener, a chain operating shaft, bearing boxes for said chain-operating shaft, one of said boxes having vertically-adjustable bearing in the base of the machine and the other having pivotal bearing in said base, substantially as and for the purpose set forth.

6. In a sawing machine, the combination with the vertically and angularly-adjustable roller-carrying frame, roller-carriers and rollers, sprockets and sprocket chain engaged therewith, of a pair of journal boxes, one having pivotal bearing on the base of the machine and the other having vertical adjustment thereon, a shaft carrying the lower chain-actuating sprocket and having end bearing in said boxes, and suitable means for actu-

ating said shaft, substantially as and for the purpose set forth.

7. In a sawing machine, the combination
5 with the roller carrying frame, roller-carriers, rollers, roller-actuating sprockets and sprocket chain of a sprocket-chain-actuating shaft extending transversely through the base
10 of the machine, a frame located at the rear of the machine, a box having slide bearing on said frame and affording journal bearing for the rear end of said shaft, a rod and a lever connecting with said box for reciprocating the same and the shaft, a friction disk mounted
15 on the front end of said shaft, a shaft located at the front of and parallel with the base of the machine and connected with the sprocket chain, a friction wheel carried by said latter shaft and contacting with the friction disk on the other shaft, substantially as and for the
20 purpose set forth.

8. In a sawing machine, a base, a vertical frame having depending legs each independently adjustable vertically on said base, and

upper and lower feed-roller-carrying frames carried by said vertical frame and vertically 25 adjustable independently thereof whereby said vertical and feed-roller carrying frames are adapted to be angularly adjusted relatively to the saw, eccentrics connected with said roller-carriers, weights and connecting 30 rods connected with said eccentrics for weighting and drawing the feed-rollers to their work, feed-rollers journaled in said carriers, a pair of band wheels, one having stationary support on the base and the other having horizontal adjustable support on said base to and 35 from the roller-carrying frames, and a horizontal band saw carried by said band wheels, substantially as and for the purpose set forth.

In testimony whereof I affix my signature 40 in presence of two witnesses.

ALBERT HAZEWINDEL.

Witnesses:

THOMAS T. WOOD,
HENRY S. KELLEY.