

(No Model.)

2 Sheets—Sheet 1.

C. F. A. STEIN.
BAND SAWING MACHINE.

No. 549,752.

Patented Nov. 12, 1895.

Fig. 1.

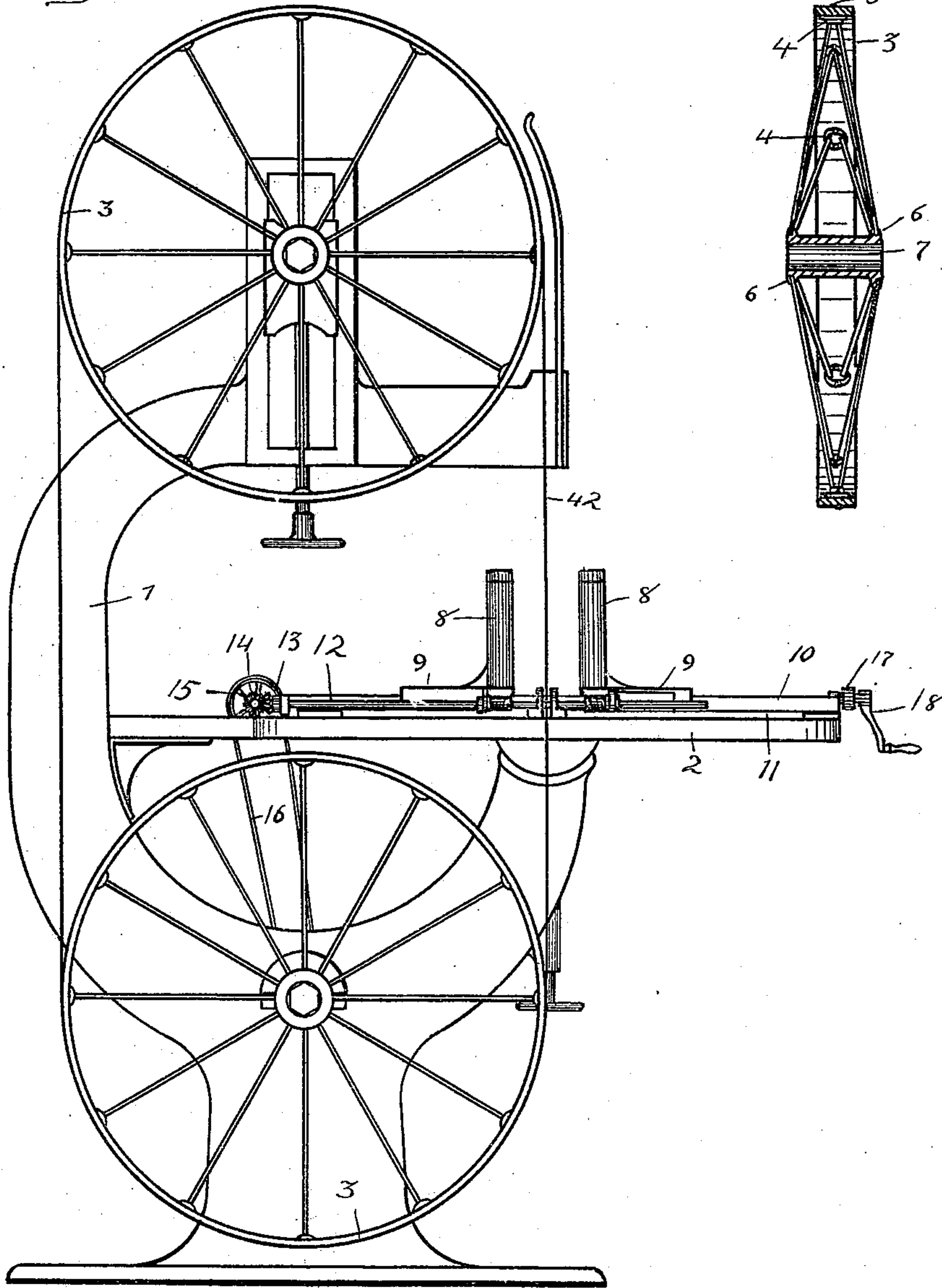
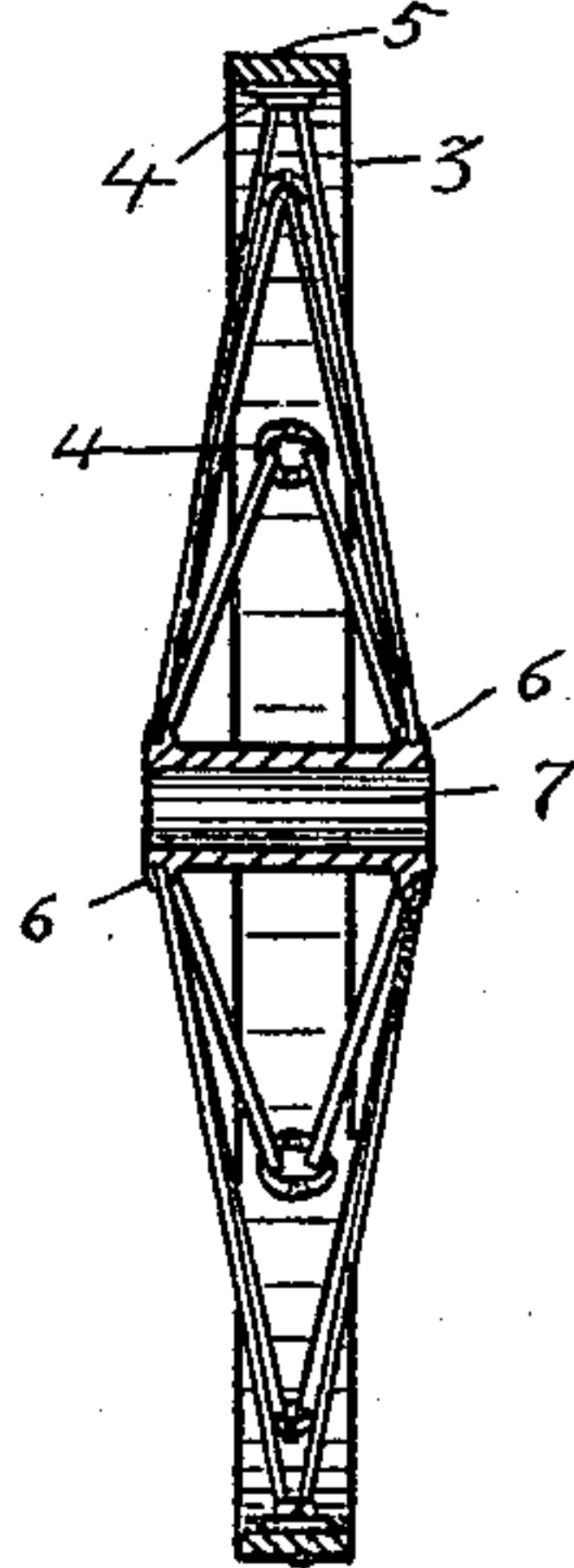


Fig. 2.



WITNESSES:

Charles F. A. Stein INVENTOR

Halter G. Burns.

BY Chapin & Denny

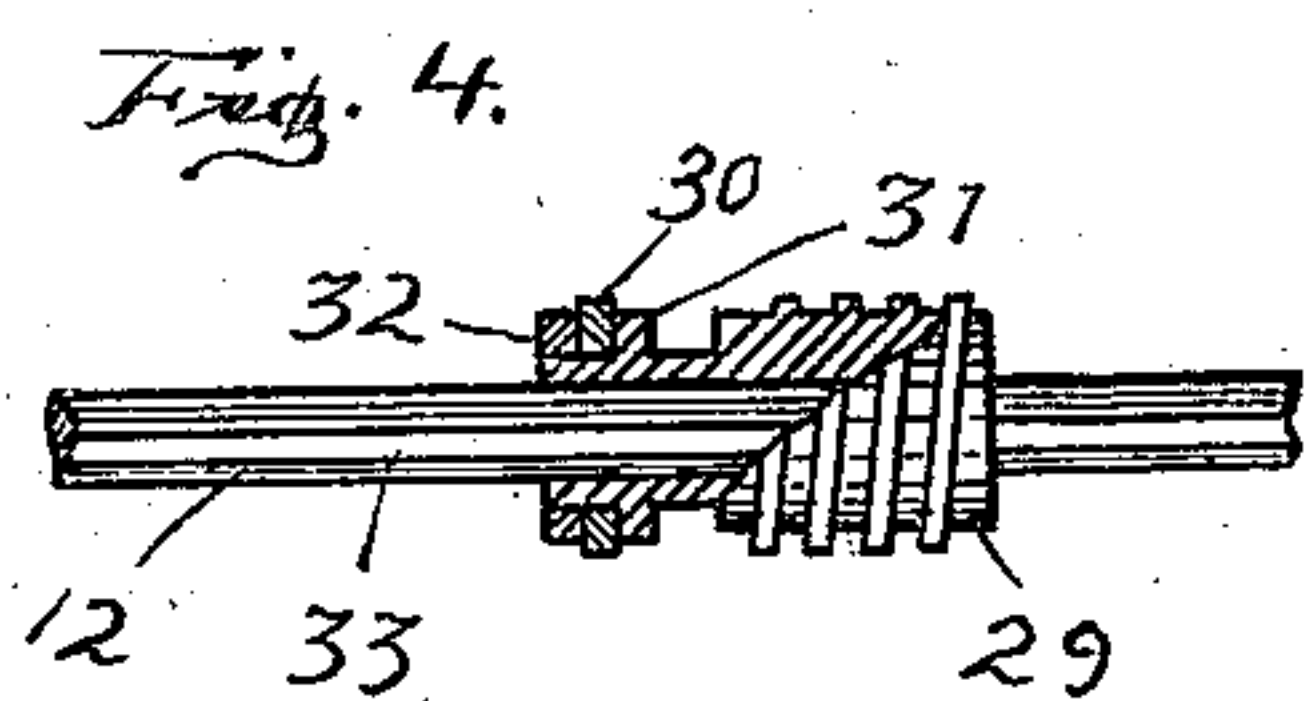
Carl J. W. Gaidle

his ATTORNEYS.

2 Sheets—Sheet 2.

No. 549,752.

Patented Nov. 12, 1895.



WITNESSES:

Charles P. A. Stein INVENTOR

Walter G. Burgess.

BY *Chapin & Denney*

Carl F W Guide

his ATTORNEYS:

UNITED STATES PATENT OFFICE.

CHARLES F. A. STEIN, OF FORT WAYNE, INDIANA.

BAND SAWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 549,752, dated November 12, 1895.

Application filed March 29, 1895. Serial No. 543,627. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. A. STEIN, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Band Sawing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in band sawing-machines for resawing lumber.

The object of my invention is to provide an improved mechanism for adjusting and feeding the lumber to the saw in process of manufacture. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the machine in position and showing the general arrangement of its parts. Fig. 2 is a central section of one of the band-wheels, showing the arrangement of the spokes and the manner of securing the same to the wheel. Fig. 3 is a plan view of the feed attachment. Fig. 4 is a detail view of the feed worm-wheels which operate the adjustable feed-rollers, showing the manner of mounting the same on the driving-shaft. Fig. 5 is an end view of the worm-wheel and the shaft shown in Fig. 4. Fig. 6 is a detail view of the guide-block for retaining the lumber in proper position while being manufactured. Fig. 7 is an end view of the resawing attachment.

Similar numerals refer to similar parts throughout the several views.

1 is the main stationary saw-frame; 2, the table upon which rests the feed mechanism; 3, the rims of the band-saw wheels; 4, metallic lugs for securing the outer ends of the spokes in the wheels to the rims.

5 are rivets or screws for fastening the lugs 4 to the rims.

6 are annular flanges on the terminal ends of the hub 7.

7 is the hub of the band-wheel.

8 are adjustable feed-rollers.

9 and 9' are slidable plates, upon which are

mounted the feed-rollers 8 and guide-rollers 25.

10 is a carriage-track for the plates 9 and 9', and 11 the base-plates of the track 10 and integral with it.

12 is a driving-shaft having upon it the slidable worm-wheels 28 and 29.

13 is a bevel-wheel rigidly attached to the end of the shaft 12 and meshing with the bevel-wheel 14, which is rigidly attached to the end of the power-shaft 24.

15 is a band-pulley rigid on the shaft 24 for connection by a driving-belt 16 with the motive power.

17 is a spur-wheel mounted upon the shaft 20.

18 is a hand-crank removably secured upon the end of an externally-screw-threaded round shaft 19.

20 is an externally-screw-threaded round shaft, upon which is mounted the spur-wheel 17.

21 is a spur-wheel mounted upon the end of the shaft 19 and meshing with the wheel 17. Both wheels 17 and 21 are secured to their respective shafts by set-screws, as shown, which can be loosened, so that the wheels will rotate upon the shafts.

22 is a bracket bolted to the end of 10 for supporting journals of meeting shafts 12 and 24.

24 is a driving-shaft for motive-power connection.

25 are vertical guide-rollers; 26, vertical extensions of plates 9 and 9'.

27 are worm-wheels on lower ends of 8, adapted to engage with 28 and 29.

28 and 29 are worm-wheels slidably mounted upon the driving-shaft 12 and having internal lugs 34, adapted to slide in groove 33.

30 are brackets rigidly secured to plates 9 and 9' with perforated lugs loosely mounted upon the ends of the worm-wheels 28 and 29, as shown.

32 are removable collars mounted rigidly upon the collars of worm-wheels 28 and 29 to secure 30 thereon against the collar 31, mounted upon said worm-wheels.

33 is a longitudinal groove in shaft 12 for the lugs 34, as shown in Fig. 5.

34 are rigid internal lugs upon the slidable worm-wheels 28 and 29.

35 is a perforated lug rigidly secured to the slidable plate 9 and slidably mounted upon the shaft 20.

36 is an internally-threaded collar adapted to engage with the screw-threaded shaft 20 and adjustable in slot 43 in plate 9.

37 is a coiled spring loosely mounted on 20 between 35 and 36.

38 is a lug on 36, slidable in slot 43.

39 is a washer for 38; 40, a screw securing 35 to 9; 41, a bifurcated bridge; 42, the band-saw; 43, longitudinal slot in 9, and 44 internally-screw-threaded collar secured to plate 9' by bolt and mounted on screw-threaded shaft 19.

All parts of the machine are of metal, preferably iron and steel.

Both band-wheels are similarly constructed and may be of any form adapted to such use; but I preferably use those constructed as follows:

The lugs 4 are rigidly secured by rivets or bolts upon the under side of the rim 3 of the band-wheel at proper intervals for the spokes. Each lug has two screw-threaded perforations diametrically opposite and transverse to the periphery of the wheel, adapted to receive the outer end of the spokes. The hub 7 is longer than the width of the rim of the wheel and has at its terminals annular flanges made integral with the hub or rigidly secured thereto. These flanges have a series of radial screw-threaded perforations for receiving the inner ends of the spokes.

The spokes are arranged in pairs and screw-threaded at the ends and adapted to screw into the hub and rim, thereby making a wheel of great solidity. The insertion of the spokes in the terminal flanges of the hub gives them an extended base, and thereby strengthens the wheel against lateral strains.

The plates 9 and 9' are mounted upon the carriage-track 10, so as to slide freely upon the same. The carriage-track, upon which the said plates slide, has the outer edges dovetailed, as shown, and the undersurfaces of the plates have corresponding dovetailed grooves adapted to receive the dovetailed track, and the plates are secured from vertical and lateral displacement, and at the same time can be freely moved longitudinally by rotating the shafts 19 and 20, as hereinafter described.

The power applied by the driving-belt 16 to the shaft 24 is communicated to shaft 12 by the gear-wheels 13 and 14, thereby causing the shaft 12 to rotate, as clearly appears from the drawings. The shafts 19 and 20, geared by the spur-wheels 17 and 21, when rotated by turning the hand-crank 18 through their screw-threaded connections with the screw-threaded collars 36 and 44 will move the slidable plates 9 and 9' toward or from each other, according to the direction in which 18 is turned, and thereby diminish or increase the space, as may be desired, to adapt it to the dimensions of the stuff to be resawed.

The gear ends of the shafts 19 and 20 have

suitable bearings for their support in the transverse part of the carriage 10, as shown in Fig. 3. The worm-wheels 28 and 29, adapted to slide on the shaft 12, are secured to plates 9 and 9' by the perforated lugs of the brackets 30. These lugs are loosely mounted upon the collar ends of 28 and 29 and secured thereon by the collars 32.

The internal lugs 34 are adapted to slidably move in the groove 33 and secure the worm-wheels from rotating upon the shaft 12, and thereby causing them to rotate with the said shaft.

The brackets 30 are bolted to plates 9 and 9', as shown. The vertical guide-rollers 8 and 25 on each plate 9 and 9' are journaled at their terminal ends into an extension of the said plates. At the lower end of the roller 8 is a worm-wheel rigidly secured to the roller and adapted to engage with and be rotated by the worm-wheels 28 and 29.

The perforated lug 35, secured to plate 9, is mounted loosely on the shaft 20, and the coiled spring 37, placed also loosely upon said shaft between 35 and the collar 36, by its pressure against 35 keeps the plate 9 forcibly pressed against the lumber to be sawed, as hereinafter described. The bridge 41 is raised above the carriage-track and shafts 19 and 20 by the bent terminals, so as to clear the same, and is securely bolted to the table by its ends, as shown in Fig. 7.

The mode of operating the machine is as follows: The saw is mounted upon the band-wheels in the usual manner. The spur-wheel 17 is released from gear with 21 by loosening the set-screw upon its shaft 20, and by the hand-crank 18 the plate 9' is gaged with respect to the band-saw to give the desired thickness of the lumber to be cut from the timber. The crank is then placed upon the terminal end of the shaft 20 and the plate 9 adjusted so as to receive the timber to be sawed between the plates 9 and 9'. The spur-wheels 17 and 21 are then engaged by fastening the set-screws.

If it is desired to simply split the lumber into two pieces of equal thickness, the plates should be adjusted equally distant from the saw, and then, with the two shafts 19 and 20 geared by fastening the spur-wheels, the space between the plates can be adjusted by turning the hand-crank on the shaft 19.

When the power is applied, the rotary motion of the shaft 12 causes the guide-rollers 8 to revolve, and the lumber being inserted between them is presented and fed to the saw and is kept in proper position by the vertical faces 26. The yielding of the plate 9 by the compression of the coil-spring 37 will prevent fouling from inequality in the thickness of the lumber to be cut.

Having thus described the mechanism, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a band sawing machine a feeding mechanism comprising the carriage bed 11

having a dovetailed carriage track, the grooved driving shaft 12 with slidable worm wheels 28 and 29 mounted thereon and having internal lugs 34 adapted to fit in the groove 33 of said shaft 12, the brackets 30 secured to the plates 9 and 9' and having perforated lugs mounted loosely on the collars of said worm wheels 28 and 29, the screw threaded shafts 19 and 20, the spur wheels 17 and 18 to be secured by set screws to said shafts and by which the same can be loosened upon said shafts at pleasure: the angled plates 9 and 9' having dovetailed grooves upon the under surface adapted to slidably rest upon the dovetailed carriage track 10, the internal screw threaded collars 36 and 44 adapted to engage with the screw threaded shafts 19 and 20: the vertical feed rollers 8 having at their lower ends worm wheels 27 rigidly secured thereto and adapted to engage with the worm wheels 28 and 29: the lug 35 and the coiled spring 37 mounted on the shaft 20, the slot 43, the guide rollers 25, the bifurcated bridge 41 all arranged substantially as described and shown.

2. In a band saw machine, the combination of the stationary frame 1, the table 2, the two saw band wheels 3, the carriage bed 11 having a dovetailed carriage track, the

grooved driving shaft 12 with sliding worm wheels 28 and 29, having internal lugs adapted to engage the groove 33, the brackets 30 having perforated lugs fitted loosely on collars of worm wheels 28 and 29, the screw threaded shafts 19 and 20 geared by the spur wheels 17 and 21, and having set screws for loosening the spur wheels on the said shafts, the angled plates 9 and 9' having dovetailed grooves upon the under surface adapted to slidably rest in the dovetailed carriage track 10; the internal screw threaded collars 36 and 44 adapted to engage with the screw threaded shafts 19 and 20, the vertical feed rollers 8 having the worm wheels 27 rigidly secured thereto and adapted to engage with the worms 28 and 29, the lug 35 and the coiled spring 37 mounted on the shaft 20 between the lug 35 and the collar 36, the slot 43 in plate 9, the guide rollers 25, the bifurcated bridge 41 all arranged substantially as described and shown.

Signed by me, at Fort Wayne, Allen county, State of Indiana, this 23d day of March, A. D. 1895.

CHARLES F. A. STEIN.

Witnesses:

WALTER G. BURNS,
CHAS. F. A. STEIN.