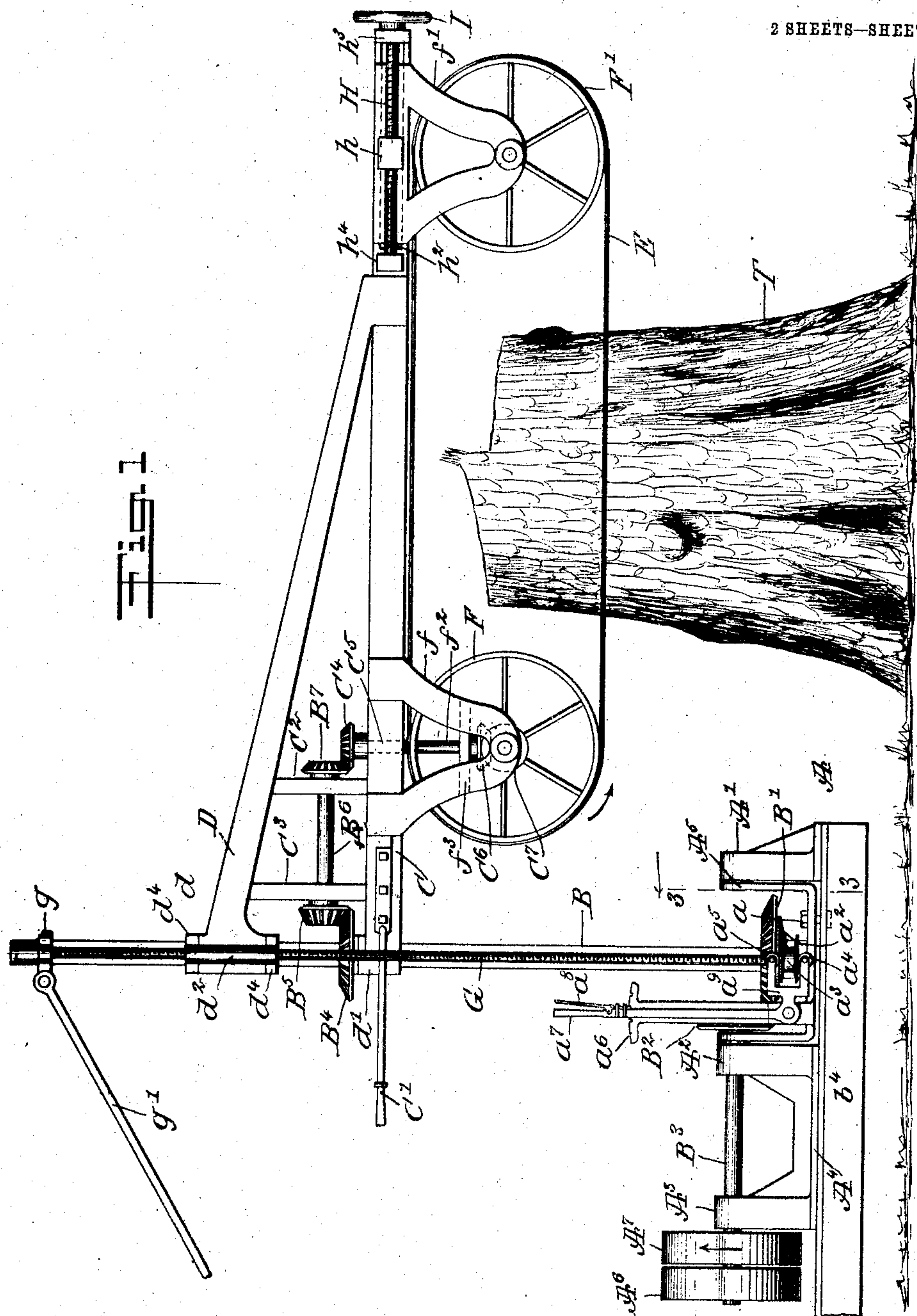


E. B. WEBSTER.
STUMP SAWING MACHINE.
APPLICATION FILED APR. 21, 1908.

906,839.

Patented Dec. 15, 1908.

2 SHEETS—SHEET 1.



WITNESSES
F. W. Sweet.
J. O. Davis

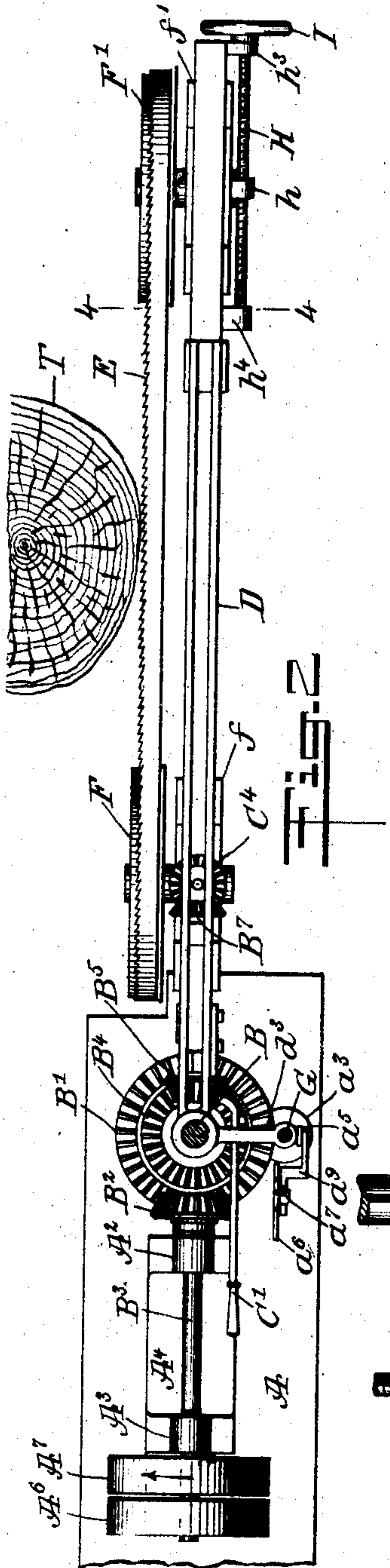
INVENTOR
Everett B. Webster.
BY *Munn & Co*
ATTORNEYS

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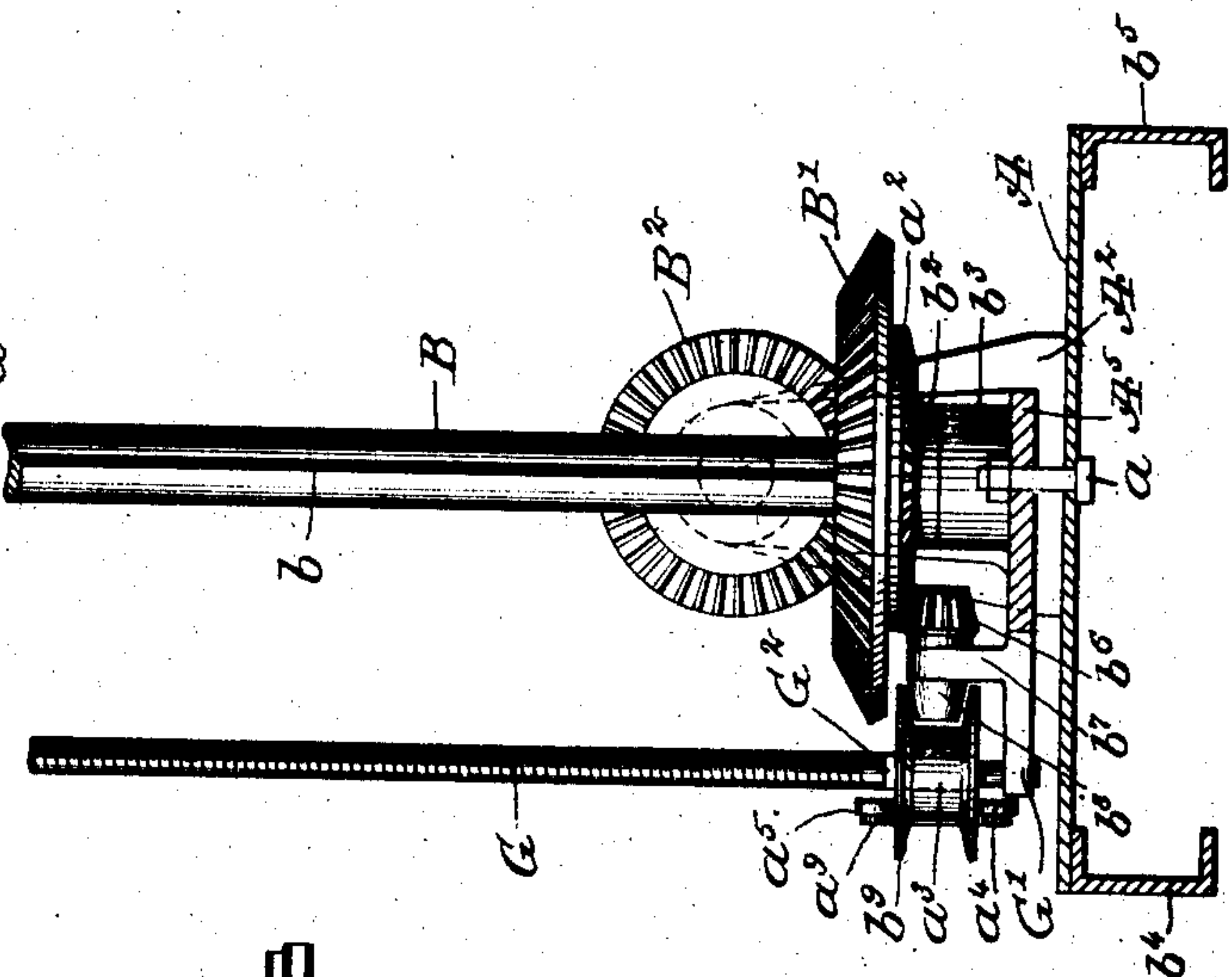
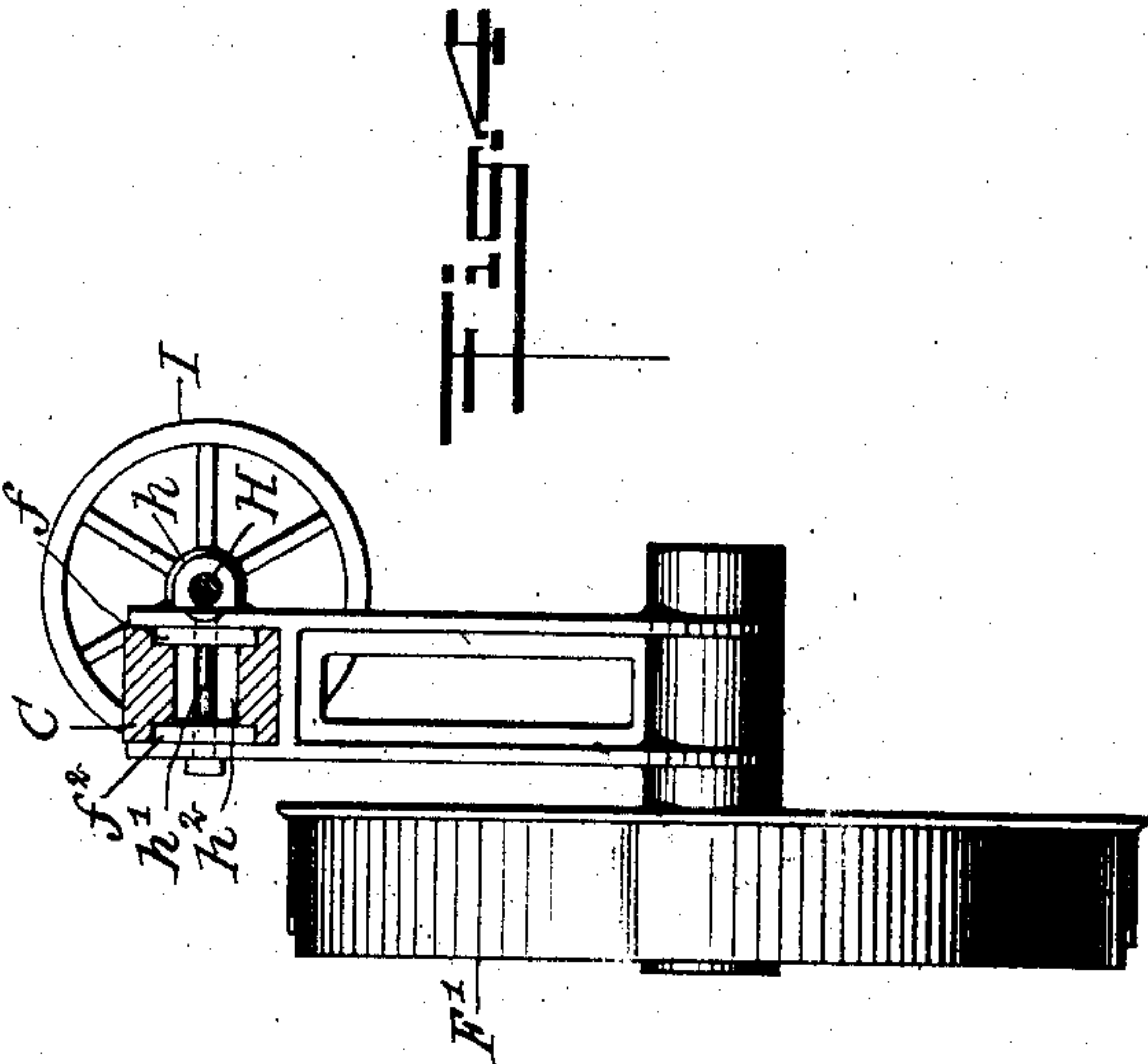
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UNITED STATES PATENT OFFICE.

EVERETT BOUGHTON WEBSTER, OF LA CRESCENT, MINNESOTA.

STUMP-SAWING MACHINE.

No. 906,839.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed April 21, 1908. Serial No. 428,340.

To all whom it may concern:

Be it known that I, EVERETT B. WEBSTER, a citizen of the United States, and a resident of La Crescent, in the county of Houston and State of Minnesota, have invented a new and useful Stump-Sawing Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in stump-sawing machines; in which a swinging, horizontally-disposed and vertically-supported band-saw operates in conjunction with a system of driving gear carried by and swinging with the saw frame, and a stationary driving member connected with the source of power through a transmission means; and the objects of my improvements are first, to provide facilities for positioning the saw with respect to the object to which it is directed; second, to provide means for expediting the erection and removal of the device and the power transmission therefor; and third, to insure durability of the working parts and the entire structure in proportion to the weight thereof. I attain these objects by the mechanism illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevational view of the entire machine as applied to cutting a stump, a portion of the bed of the driving countershaft being removed, as well as the lower portion of one of the mast guys; Fig. 2 is a top plan view thereof, and a cross section taken through the mast and elevating worm above the saw frame; Fig. 3 is an enlarged detail cross sectional, elevational view, taken through the bed of the countershaft on the line 3—3 of Fig. 1; and Fig. 4 is an enlarged cross sectional elevational view, taken on the line 4—4 of Fig. 2.

Similar characters of reference designate like parts throughout the several views.

The base or bed A, its supporting frames or rails b^4 and b^5 , together with the bearings A^1 , A^2 and A^3 carried thereby and the swinging step A^5 pivoted to the brackets A^1 and A^2 , constitute the framework of the countershaft, through which the source of power is derived for driving the machine.

B is the mast and power shaft of the machine, which is driven by the bevel gear B^1 through the bevel gear B^2 secured to the countershaft B^3 , carried by a stock A^4 in the bearings A^2 and A^3 at opposite extremities, and driven by a tight belt pulley A^7 .

A loose pulley A^6 is carried by the countershaft B^3 at its outer terminal, and receives the driving belt when it is thrown off from the pulley A^7 . The step A^5 carries a thrust bearing b^3 into which is axially thrust the terminal of the shaft B, and upon the bearing surface of which rests the hub b^2 of the driving bevel gear B^1 .

The horizontal beam C and the truss D, which consists of a pair of parallel tapering bars, together with the braces C^2 and C^3 , severally secured, structurally comprise with the oppositely extending brackets f and f' , the saw frame. The terminals d and d' of the beam C and truss D, respectively are bored vertically as bearings for rotational engagement with the shaft B. The bearing d' is faced and formed at its upper portion as a thrust bearing for a transmission bevel gear B^4 . This gear is keyed slidably to the shaft B, but is restricted against rotation therewith, and for this purpose, the shaft is provided with an elongated spline b . The transmission bevel gear B^4 is in mesh with a bevel pinion B^5 secured to a secondary shaft B^6 , carried in bearings by the braces C^2 and C^3 , and the opposite terminal of the shaft B^6 carries and drives a bevel gear B^7 in mesh with a horizontally rotatory bevel gear C^4 , secured to the terminal of a vertical driving shaft f^2 carried in the bearings C^5 and f^3 of the beam C and the bracket f respectively. The lower terminal of the vertical driving shaft carries and drives a bevel gear C^6 in mesh with a bevel gear C^7 secured against rotation, to the saw driving pulley F. The beam C, at its outer extremity has a longitudinally extending and horizontally disposed rabbeted slot or way h^2 , which is fitted in sliding relation to the upper edge of the brackets f' by the bearing bars f^2 (see Fig. 4) at the opposite sides and coupled by a bolt and nut h' , so as to constitute a yoke.

A terminal lug h^3 of the beam C carries the neck of an adjusting screw H, which is threaded to an eye h projecting from and carried by the bracket f' . The inner terminal is stepped in a swiveling bearing of a lug h^4 carried by and secured to the beam C and in alinement with the eye h and lug h^3 . To the outer terminal of the screw H, is secured a hand wheel I for rotating it and therefore adjusting the extension of the saw frame.

The step A^5 has an integrally formed, lat-

erally projecting arm G' , and from its terminal, a vertical elevating screw G rises and at which point it is stepped in a bearing in the said arm. The elevating screw G , is threaded through a nut d^2 at the terminal of a forked arm d^3 (see Fig. 2), which carries the upper and lower bearings d^4 for the shaft B , and straddling the bearing d of the truss D ; and adjacent to the arm G' of the elevating screw G and upon a squared portion G^2 thereof, is slidably mounted a driving friction drum a^3 , provided with laterally extending conical flanges b^9 , which are embraced by the pivoted rollers a^4 and a^5 of a fork a^9 , pivoted to a standard rising from the step A^5 and carrying a notched quadrant a^6 . Integrally formed with the fork a^9 and rising at right angles therefrom, is a lever a^7 carrying a latch a^8 , which coöperates with the notched quadrant a^6 to hold in position the fork a^9 .

Rising from the step A^5 , is a bearing bracket b^7 , which carries intermediately the shank of a pinion b^6 and a friction cone b^8 adapted to engage either of the flanges b^9 of the friction drum a^3 upon manipulating the lever a^7 . The pinion b^6 is in mesh with a bevel gear a^2 carried by the shaft B and the bevel gear B' . The bracket f' carries an idle pulley F' upon which and the driving pulley F , is supported a band saw E . To feed the band saw E , in making its cut into a stump T , or other projection, I prefer to provide a handle C' which is secured to the beam C . When it is desired to saw the stump or projection horizontally, I secure the step A^5 to the bed A by a bolt and nut a , and secure the mast or shaft B at its upper extremity by a guy g' pivoted to a bearing cap g which it rotates.

To operate the machine, the pulley A^6 is connected up with a suitable source of power by a belt, and when the belt is playing at the proper speed, it is thrown onto the tight pulley A^7 , whereupon the shaft B^3 will drive the saw E through the bevel gears B^2 , B' , vertical shaft B , bevel gear B^4 , bevel gear pinions B^5 , shaft B^6 , bevel gears B^7 and C^4 , vertical driving shaft f^2 , bevel gears C^6 and C^7 and driving pulley F .

To vary the altitude of the saw, the lever a^7 is grasped in the hand and unlatched from the quadrant a^6 by releasing the latch a^8 from the notches thereof; and assuming the driving pulley A^7 to be rotating in the direction indicated by the arrow, upon swinging the lever a^7 to the left, the roller a^4 of the fork a^9 will bear the friction drum a^3 upwardly until the lower flange b^9 of the friction drum a^3 , will make frictional contact with the revolving friction cone b^8 , and the elevating screw G will be revolved counterclockwise; and should the handle C' of the beam C be held rigidly by the operator to obviate the turning of the saw frame, the

same will be lowered through the nut d^2 . Obviously, to elevate the saw E , the reverse action of the lever a^7 will be required. To adjust the tension of the saw, the hand wheel I is turned to the right or left, as desired. By removing the bolt and nut a and slacking off the guy g' , the machine may be swung angularly downward until it assumes a horizontal position where it may be employed to cut timber or logs.

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

1. In a sawing machine, a countershaft and pedestal therefor, a vertical shaft carried by the pedestal, gears connecting the vertical shaft and the countershaft, a swinging frame carried by the vertical shaft, gears slidably mounted on the vertical shaft carried by the frame, a band saw and a driving pulley therefor carried by the frame, gears connecting the driving pulley with said slidably mounted gear, and means driven by the countershaft for adjusting the elevation of the frame.

2. In a sawing machine of the character described, a band saw provided with a frame and driving gear therefor, and a vertical driving shaft carrying the frame and slidably coöperating with the driving gear.

3. In a sawing machine of the character described, a driving shaft, stationary and sliding gears on the driving shaft, a frame carrying a band saw, driving gear therefor slidably mounted on the driving shaft and adapted to be swung thereon, and means driven by the stationary gear for adjusting the elevation of the frame.

4. In a stump sawing machine, the combination with a stationary driving member, a rotatory mast and a swing band saw frame slidably adjustable thereon, of an elevating screw and a swinging step carrying the elevating screw and said mast.

5. In a machine of the character described, the combination with a stationary driving member and a band saw, of a horizontally adjustable and vertically swinging driving member connected therewith, and an elevating device, and a clutch and a controlling lever therefor coacting with the stationary driving member and the vertically swinging driving member for adjusting the elevation of the horizontally adjustable member.

6. In a stump sawing machine, a stationary driving member, a vertically swinging driving shaft geared thereto, a horizontal arm swung thereon and geared therewith, a band saw carried by the horizontal arm and in gear with the said vertically swinging driving shaft and stationary driving member, and a vertically swinging elevating device coacting with the stationary driving member and horizontal arm, to adjust the altitude thereof.

7. In a stump sawing machine, a stationary power driving member, a driving shaft geared to said driving member, a band saw frame, a saw therefor slidably mounted
5 upon the shaft and in driving gear with the said shaft, an adjusting screw in parallel with the driving shaft and engaging the frame, and a direct driving and reversing clutch gear coacting with the driving mechanism and said screw, to regulate the adjustment of the said frame.

8. In a stump sawing machine, a stationary driving member, a shaft geared therewith at right angles thereto, a step and
15 thrust bearing for the shaft, carried by the

stationary driving member and swung pivotally in the axis thereof, a saw frame and saw and driving gear therefor, carried slidably by the shaft and in gear therewith, and adapted to be swung thereon, and a device driven by the stationary driving member and coacting with the saw frame for adjusting the same longitudinally thereon.

In testimony whereof I have signed my name to this specification in the presence of
25 two subscribing witnesses.

EVERETT BOUGHTON WEBSTER.

Witnesses:

J. W. WELCH,
W. M. SELBY.