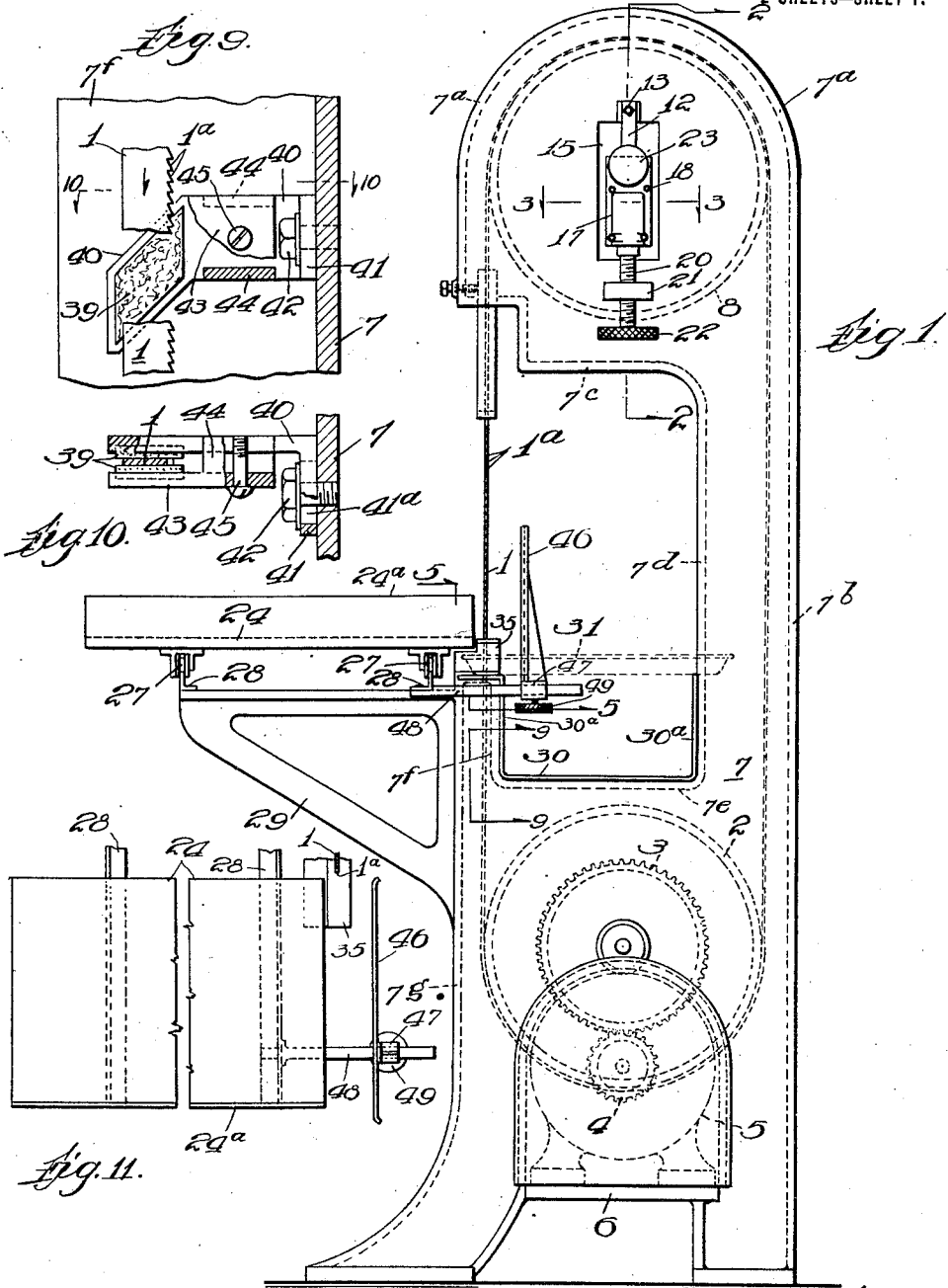


J. W. VAUGHAN.
 BAND SAW.
 APPLICATION FILED MAY 26, 1919.

1,392,990.

Patented Oct. 11, 1921.

2 SHEETS—SHEET 1.



Inventor:
 Jay W. Vaughan,

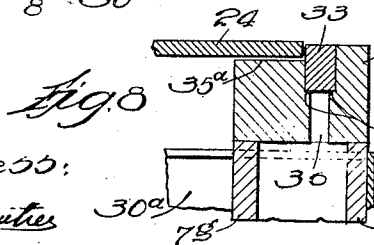
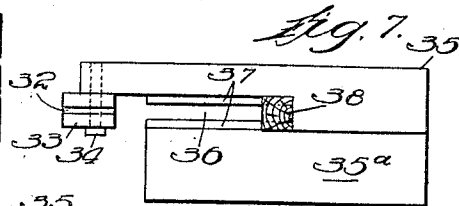
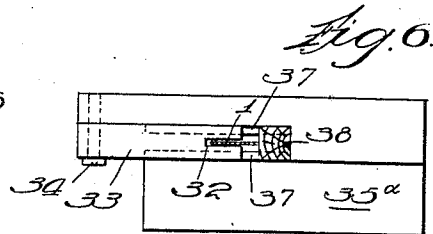
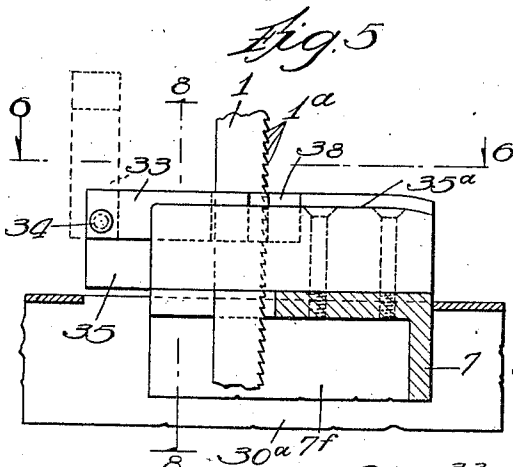
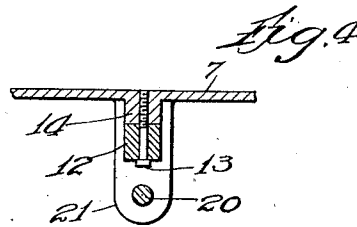
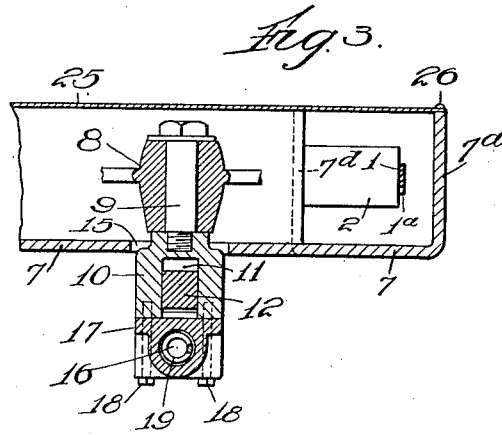
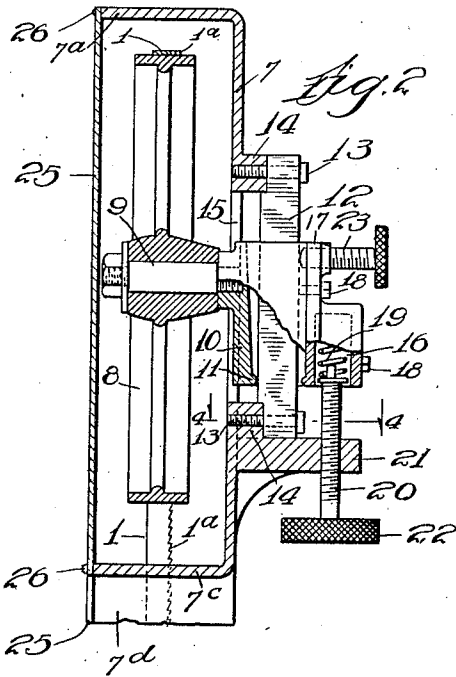
by *Burlin Burlin*
 Trs Attys.

Witness:
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1,392,990.

Patented Oct. 11, 1921.

2 SHEETS—SHEET 2.



Witness:
[Signature]

Inventor:
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UNITED STATES PATENT OFFICE.

JAY W. VAUGHAN, OF CHICAGO, ILLINOIS.

BAND-SAW.

1,392,990.

Specification of Letters Patent.

Patented Oct. 11, 1921.

Application filed May 26, 1919. Serial No. 299,718.

To all whom it may concern:

Be it known that I, JAY W. VAUGHAN, a citizen of the United States, residing in the city of Chicago, county of Cook, and the State of Illinois, have invented certain new and useful Improvements in Band-Saws, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

This invention relates to a machine of the band saw type and is shown embodied in a structure whose details are designed to adapt the machine particularly for cutting meat. It consists in the features and elements presented by the drawings and hereinafter described as indicated by the claims.

In the drawings:

Figure 1 is a side elevation of a band saw embodying the various features constituting this invention.

Fig. 2 is a detail section on a larger scale taken as indicated at line 2—2 on Fig. 1.

Fig. 3 is a detail section taken as indicated at line 3—3 on Fig. 1.

Fig. 4 is a detail section taken as indicated at line 4—4 on Fig. 2.

Fig. 5 is a detail section taken as indicated at line 5—5 on Fig. 1.

Fig. 6 is a detail section taken as indicated at line 6—6 on Fig. 5.

Fig. 7 is a section similar to Fig. 6 but showing the saw guide swung out of working position to permit entering of the saw.

Fig. 8 is a detail section taken as indicated at line 8—8 on Fig. 5.

Fig. 9 is a detail section taken as indicated at line 9—9 on Fig. 1.

Fig. 10 is a detail section taken as indicated at line 10—10 on Fig. 9.

Fig. 11 is a fragmentary plan view of the work table and gage.

The saw employed in this type of machine is an endless steel band, 1, provided with teeth, 1^a, formed at one edge and mounted for travel over a pair of wheels or pulleys. In Fig. 1 the outline of the lower wheel, 2, is indicated in dotted lines and there is shown associated with it a gear, 3, meshing with a pinion, 4, on the shaft of the driving motor, 5, supported on a shelf or bracket, 6, near the base of the frame, 7, of the machine. The upper wheel or pulley is indicated also in dotted lines at 8, in Fig. 1, and is more fully shown in Fig. 2.

In the process of joining the ends of the saw blade, 1, to give it the form of an endless band or belt, the end portions are not always perfectly alined with each other, or there is some resultant warping of the blade or, from various other causes, the band is liable to slight deformation so that it would not run properly over the two wheels, 2 and 8, if their axes were perfectly parallel to each other. Therefore it is desirable, to secure proper tracking of the saw over the wheels, to mount one of them upon an axis which is adjustable with respect to the other for the purpose of accommodation to the peculiarities of individual saw blades. As shown the wheel, 8, is so mounted upon a spindle, 9, extending rigidly from a carrier member, 10, which is formed with a smoothly rounded fulcrum portion or edge at 11, mounted to impinge upon the smooth flat bearing surface of the member, 12, which is shown as a vertically extending bar of rectangular cross section secured by screws, 13, to the lugs or bosses, 14, of the frame, 7, and spanning an opening, 15, in the web of said frame.

The carrier, 10, is formed to embrace the bearing bar, 12, which acts also as a guide for the carrier, as indicated in Fig. 3, and at the opposite side of said bar, 12, from that against which the fulcrum, 11, impinges, the carrier, 10, is provided with a socket, 16, preferably formed in a separate sheath, 17, secured by screws, 18, to the member, 10. The socket, 16, is opened downwardly and contains a coiled compression spring, 19, seated upon the upper end of an adjustable post, 20, in the form of a screw carried in a threaded bracket, 21, of the frame, and provided with a handwheel, 22, for manipulating it. By adjustment of the screw or post, 20, the carrier, 10, and with it the spindle, 9, may be moved up or down in the frame, 7, or at least the pressure exerted through the spring, 19, upon the carrier and the spindle, 9, may be increased or diminished by such adjustment for regulating the tension of the saw band, 1. At the same time the carrier, 10, and the spindle, 9, may be rocked upon the fulcrum, 11, by an adjusting screw, 23, set through the upper portion of the part, 17, and bearing against the opposite face of the bearing bar, 12, to that upon which the fulcrum, 11, rests, and

by this adjustment the principal plane of the wheel, 8, may be shifted to cause proper tracking of the saw band, 1, on the wheel.

It may be noted that since the fulcrum, 11, is smoothly rounded and the bearing surface of the bar, 12, upon which it rests is smooth and flat, the carrier, 10, may slide bodily up and down upon the bearing bar, 12, when the threaded post, 20, is adjusted up or down, or if, during operation of the saw, certain portions of the band, 1, being slightly more or less flexible than other portions, cause variations in tension, as the saw traverses the wheel, 8, to which variations the wheel can accommodate itself within limits permitted by the stress of the cushion spring, 19, upon which the carrier, 10, is seated. To prevent interference with such sliding movement, the end of the adjusting screw, 23, is also smoothly rounded and preferably hardened, so as to slide easily over the surface upon which it bears. It may also be noted that, while the spring, 19, opposes the tension of the saw blade, 1, with relation to sliding movement of the carrier, 10, on the bearing bar, 12, said spring, 19, acts in the same direction as the tension in the saw with respect to the tendency to twist the axis of the spindle, 9, about the fulcrum, 11; thus, if the saw blade should break while running, the release of its tension would not cause the wheel, 8, to spring out of its normal running plane, but it would continue to spin in that plane without tending to throw the loosened saw blade out of its normal course and cause further damage.

Under such circumstances, however, the present machine is rendered much safer than the ordinary design of wood-working band saw by forming the frame, 7, with a deep flange, 7^a, which almost completely incloses the saw blade, 1, leaving it exposed only for a short distance for engaging its work. The flange, 7^a, forms a hood over the upper half of the wheel, 8, and extends straight down therefrom at 7^b, to the floor, passing by the lower wheel, 2, as seen in Fig. 1. At the other side of the wheel, 8, the flange passes under the wheel at 7^c and then down at 7^d, parallel to the portion, 7^b, forming a space for vertical travel of the idle and upwardly moving ply of the saw blade, 1. A continuation of the flange at 7^e extends horizontally over the wheel, 2, and then vertically at 7^f to a point near the level of the work table, 24. From this level an outer flange, 7^g, extends to the floor, completing the inclosure of the saw blade, while a still more thorough housing of the parts is accomplished by adding one or more plates, 25, to form a wall parallel to the web of the frame, 7, secured by screws, 26, entering the edge of the peripheral flange of the frame. Such housing of the saw blade and wheels not only adds to the safety of the operator in using the

machine, but is of especial advantage when a machine of this type is used for cutting meat because of the juices and small particles of the meat which will tend to adhere to the saw blade as it works and will then be thrown off therefrom by centrifugal force as the blade traverses the carrying wheels, 2 and 8; such material being confined and caught by the housing can be periodically cleaned out of the latter, if necessary, but will not interfere with the operation of the machine and will not render it in any way objectionable as a fixture even in a public meat market or store.

The work table, 24, is preferably mounted on carrier wheels or rollers, 27, mounted on tracks, or rails, 28, which are supported on a bracket, 29, extending from the frame, 7, of the machine. The pieces or slices of meat cut off by the saw blade, 1, as the meat is fed past the blade by travel of the work table, 24, fall away from the blade, 1, on the side toward the frame, 7, and are caught either in a receiving pan, 30, or on a tray or platter, which may be set in position as indicated in dotted lines at 31 on Fig. 1, resting on the upper edges of the pan, 30; the choice of the pan, 30, or the tray, 31, as a receiving means depending simply upon the size and shape of the pieces cut off. To permit such use of the tray, 31, the side walls, 30^a, of the pan, 30, terminate a short distance below the level of the table, 24, as shown in Fig. 1.

At the point of work the saw blade, 1, travels in a guide slot, 32, of a block, 33, and under the stress of its work, the smooth back edge of the saw blade may be forced to the bottom of the slot, 32, but no rollers or other anti-friction devices are found necessary because the escaping juices and particles of fat from the meat itself will sufficiently lubricate the parts for easy running at this point. The block, 33, is pivotally secured at 34 to a mounting member, 35, rigidly carried by the frame, 7, and having a horizontally extending slot, 36, which is closed by the block, 33, when the latter lies horizontally therein resting upon the ledges, 37, formed in the side walls of the slot, 36. The pivot, 34, being at some distance back from the mouth of the slot, 36, access thereto for entering the saw blade, 1, in assembling the machine or after repairing the blade is afforded by swinging the block, 33, to a vertical position as shown in Fig. 7, and then swinging it down to position shown in Fig. 6 with its guide slot, 32, engaging the saw blade, 1. Adjacent the toothed edge, 1^a, of the blade, a guide block, 38, of wood vulcanized fiber or other material which will not injure the saw if brought in contact therewith is secured in the end of slot, 36. At 35^a, a mounting member, 35, is cut down slightly to accom-

modate the thickness of the work table, 24, so that its upper surface may be substantially at the plane at which the saw blade, 1, enters the guide slot, 32.

5 To prevent the undue accumulation of meat particles upon the entire inner surface of the guard flanges of the frame, 1, a wiping device may be provided for the saw just below the guide slot, 33. Such a device is shown in detail in Figs. 9 and 10, as
10 consisting of a pair of arms carrying wiping pads, 39, of felt preferably reinforced with wire and in contact with the opposite faces of the saw blade. The arm, 40, is in the
15 form of a bracket having its foot, 41, secured to the frame, 7, by a screw, 42, while the arm, 43, is formed with guide lugs, 44, overlapping the arm, 40, and a clamp screw, 45. Each of the arms is recessed to receive
20 one of the pads, 39, as indicated in Fig. 10, and the screw, 45, serves to adjust the pressure with which the pads are applied to the saw blade, 1. Preferably the outline of the arms, 40 and 43, is such that their upper
25 edges adjacent the saw blade, 1, extend obliquely downward from the supporting extensions of the arms, so that the downward travel of the saw blade between them will tend to cause any material arrested
30 by these obliquely extending edges of the arms or the pads, 39, carried thereby to work off downwardly over said oblique edges, instead of merely lodging and accumulating thereon as would be the case
35 if they extended directly perpendicular to the direction of travel of the blade, 1.

Upon placing a piece of meat upon the work table 24, against flange, 24^a, and feeding it to the saw by rolling the table along
40 tracks, 28, there is a temptation for the operator to take hold of the overhanging portion of the meat which is to be cut off by the saw so as to partially support it during the cutting operation, but in this
45 way seriously endangering his own fingers. To avoid this danger a gage plate, 46, is provided adjustably carried by a bracket, 47, which is slidable upon an arm, 48, extending from one of the rails, 28, a clamp
50 screw, 49, serving to secure the bracket at any adjusted distance from the plane of the saw blade, 1, for gaging the thickness of the piece to be cut off. As shown in Fig. 11, the gage plate, 46, is entirely forward of the transverse plane through the cutting
55 edge, 1^a, of the saw, but extends substantially to that plane so as to guide the meat

throughout its approach to the saw and eliminate any need for manual guidance at this side.

60

I claim:—

1. In a band saw, in combination with the endless saw blade and a supporting wheel therefor, a frame on which the wheel is mounted, provided with a pair of oppositely
65 facing surfaces, a carrier having a spindle for the wheel and formed with a fulcrum arranged to bear upon one of said surfaces, and an adjustable member on the carrier disposed to bear against the other of said
70 bearing surfaces at a distance from the fulcrum axis.

2. In the combination defined in claim 1, said bearing surfaces being the opposite
75 sides of a bar substantially parallel to the general plane in which the saw travels.

3. In the combination defined in claim 1, said bearing surfaces being the opposite sides
80 of a bar substantially parallel to the general plane in which the saw travels, the carrier being guided for movement along said bar.

4. In the combination defined in claim 1, said bearing surfaces being the opposite sides
85 of a bar substantially parallel to the general plane in which the saw travels, said bar being rectangular in cross-section and the carrier being formed to embrace the other pair of opposite faces of the bar for guidance in longitudinal movement thereon.

5. In the combination defined in claim 1,
90 said fulcrum and said adjustable member being adapted to slide over the respective bearing surfaces for bodily adjustment of the carrier thereon.

6. In the combination defined in claim 1,
95 said fulcrum and said adjustable member being adapted to slide over the respective bearing surfaces for bodily adjustment of the carrier thereon, the frame having a rigid abutment and a cushion spring reacting
100 between said abutment and the carrier tending to cause or permit such sliding movement.

7. In the combination defined in claim 1,
105 said fulcrum being adapted for movement over said bearing surface, the frame having a rigid bracket, and an adjusting screw mounted therein, movable in direction transverse to the axis of the spindle and connected to the carrier for adjusting the tension of the saw blade.

110

In testimony whereof, I have hereunto set my hand at Chicago, Illinois, this 22nd of
May, 1919.

JAY W. VAUGHAN.