P. J. SMITH.

JOINTER FEEDER.

APPLICATION FILED MAR. 22, 1917.

1,249,533.

Patented Dec. 11, 1917.

2 SHEETS—SHEET 1.

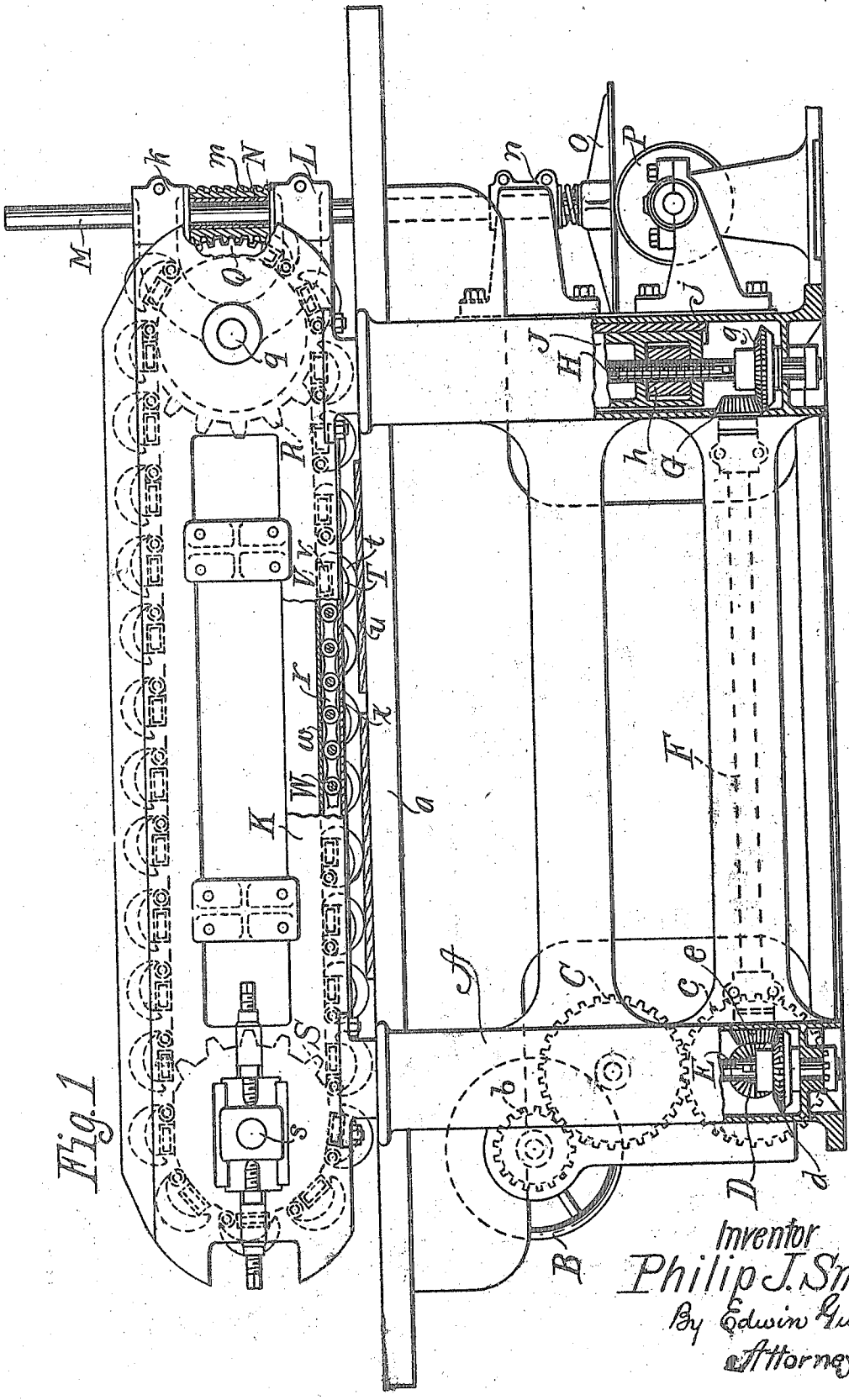


Fig. 1

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2 SHEETS—SHEET 2.

Fig. 2

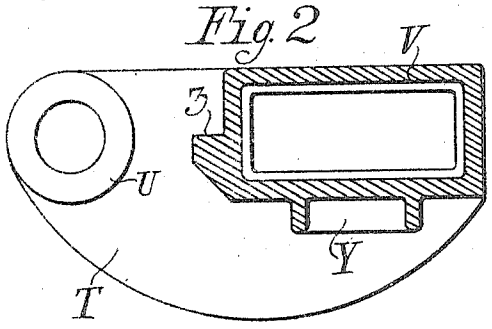


Fig. 3

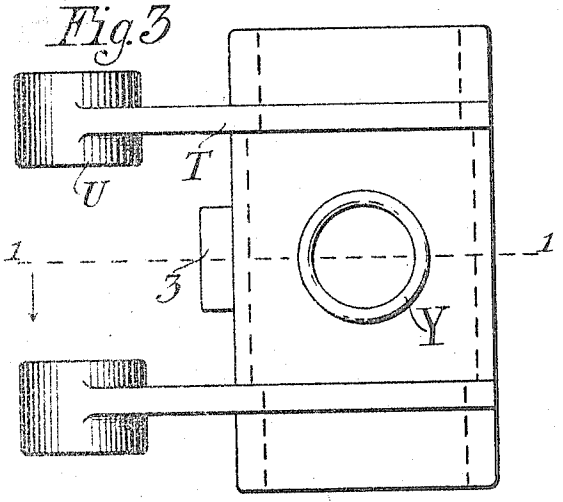


Fig. 4

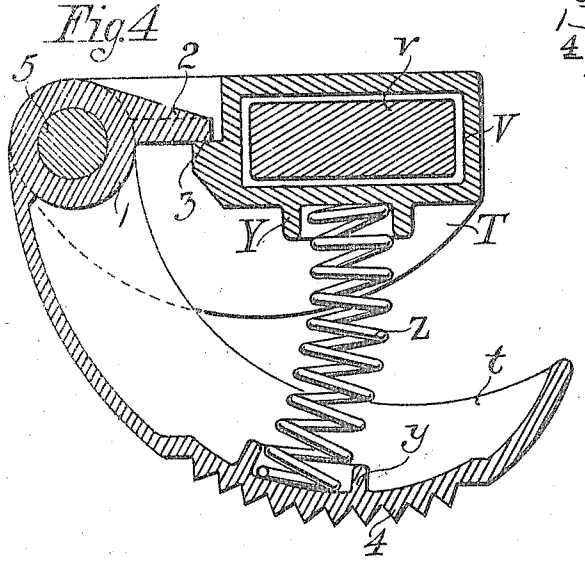
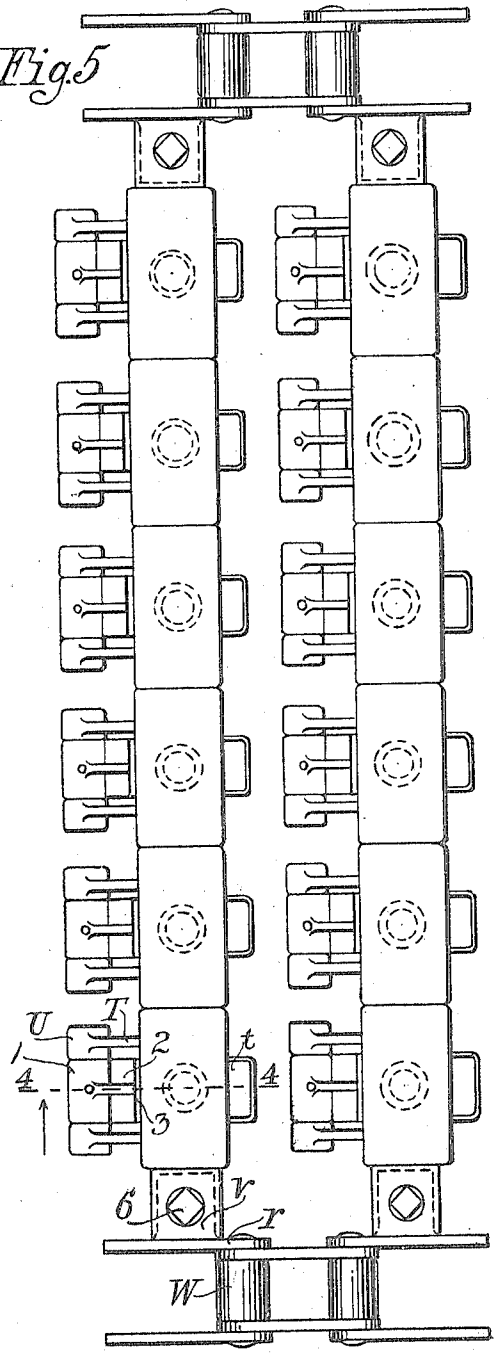


Fig. 5



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UNITED STATES PATENT OFFICE.

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JOINTER-FEEDER.

1,249,533. Specification of Letters Patent. Patented Dec. 11, 1917.

Application filed March 22, 1917. Serial No. 156,519.

To all whom it may concern:

Be it known that I, PHILIP J. SMITH, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Jointer-Feeders, of which the following is a specification.

This invention relates to jointer feeders or machines of similar function to or upon which it is necessary to feed boards of suitable extent and character, and this invention is concerned with the feeding devices and has for its object the production of a feeding band or belt and the dogs comprising the band, of particular construction and arrangement.

The accompanying drawings set forth the special construction and arrangement of the parts of this invention, and Figure 1 represents a side view of a jointer with this invention applied thereto. In this illustration the ordinary knife of the jointer is not shown as it forms no portion of this invention. Fig. 2 is a cross-section of one of the feeding dogs through the body thereof, the section being taken upon the broken line 1—1 of Fig. 3. Fig. 3 is a bottom plan view of one of the dogs. In the first two views, the pivoted member that is constructed to engage the board is omitted. Fig. 4 is a cross-section of one of the dogs with all the parts thereof assembled. The section in this view is taken on the broken line 4—4 of Fig. 5. In Figs. 2, 3, and 4, the scale of drawing is about the actual size of the parts. Fig. 5 is a top plan view of a portion of a feeding belt or band constructed in accordance with this invention. The scale of drawing is reduced in this figure.

Throughout the drawings and description the same character is employed to refer to the same part.

Considering the drawings, there are shown a lower frame A and a table *a*, both stationary. At one side of the frame in any convenient position is a hand wheel B by which may be turned a pinion *b* upon the same shaft with the hand wheel. The pinion actuates a train of gears C and *c*, the latter gear turning the miter gear D, which, in mesh with the miter gear *d* rotates the vertical screw shaft E. The gear *d* also revolves the miter gear *e* and turns the horizontal shaft F. The shaft F terminates in the miter gear G that meshes with the miter gear *g* and drives the vertical screw shaft H. A nut *h* engages the screw shaft H and the nut is set into the leg J which may be moved up and down in the guide *j*. In each post or corner portion of the lower frame A there is a leg such as the leg H of the movable frame K. There is, as will be understood, a screw shaft for each leg, and by means of the hand wheel B the upper frame may be raised and lowered.

At the right in Fig. 1 are shown the bearings *k* and L for a vertical shaft M that rotates a worm *m*, and the worm is movable up and down upon the shaft M, as the upper frame K is thus moved, the worm remaining in sliding engagement with the spline N of the shaft. The shaft M passes through a lower bearing *n*, and the shaft is driven by the friction disk O and wheel P. The advantage of the friction drive in this invention is that the frictional parts will permit of a slipping action in the event of the stoppage suddenly of the feeding parts from any cause. The worm *m* engages the worm wheel Q, and the worm wheel turns the shaft *q*, journaled in the upper frame and movable up and down with it. On the shaft *q* is a sprocket wheel R, and a like sprocket wheel S is located at the other end of the upper frame and is revoluble upon the adjustable cross shaft *s*. The sprocket wheels carry the sprocket chain *r*, and the chain *r* is attached to a series of parallel bars *v* which support the feeding dogs T. As best illustrated in Fig. 2. the body portion of each dog T has a transverse passage V through it, and such passages are rectangular in cross-section. As usually constructed, the bars *v* fit the passages, and, it is believed to be clear that the dogs are by such construction prevented from turning either vertically or horizontally on the bars. The feeding band or belt of dogs is made up of any number of bars, and any number of dogs upon the bars. In Fig. 5, the dogs are shown one directly in rear of another, but, that arrangement is not the only one, as the dogs may be placed in staggered positions with respect to each other upon succeeding bars.

As best illustrated in Figs. 2, 3, and 4,

the dog T will be seen to have two projecting bearings U, and a member *t* is pivotally supported in the bearings U upon a pivot pin 5. The bottom of the body of the dog T is provided with a spring seat Y, and the interior of the arm or member *t* is provided with a like spring seat *y*. A coil spring Z engages the two seats and acts upon the body of the dog and upon the member *t* to press or swing the member away from the dog. The hub 1 of the member or arm *t* is provided with a lug 2 that meets a like lug 3 projecting from the body of the dog, and the movement away from the dog of the member *t* under the force of the spring Z is thus limited.

To engage the boards *u* on the table *a*, the feeding arm or member *t* has its outer surface formed into a series of teeth 4.

In Fig. 1 it will be noted that the rollers W of the chain *r*, are guided near the table *a* between two horizontal guides *w* and *x*, consequently, the bars being attached to the chain *r*, the dogs are in that way guided horizontally near the table *a*.

For the operation of this invention there has been described the frictional driving mechanism, and the means for raising and lowering the upper frame K. It is not intended to limit this invention to the precise construction of the parts set forth for those purposes, as they may clearly be varied from the forms shown.

When the dogs have been arranged upon the bars and the bars attached to the sprocket chain *r*, as by means of the screw 6 and others like it, there is made up a band or belt of dogs which may be driven in one direction near the surface of the table, and in the other direction in a plane above the table. By raising or lowering the upper frame, whatever may be the thickness of the boards *u* will be allowed for, and the teeth 4 of the dogs may be caused to press into the wood. As the band of dogs is driven the boards are fed correspondingly and very evenly and certainly. While the preferred shape of the dog T and of its pivotal feeding member *t* are herein shown and described, it is believed to be within the purview of this invention to vary those forms if found to be desirable.

Having now described this invention and explained the mode of its operation, what I claim is:—

1. In a jointer feeder, a feeding dog having a body portion provided with a transverse passage, the said body having bearings projecting at one side thereof, a feeder arm having one end pivotally secured in the said bearings, the said arm being constructed with a curved exterior portion provided with teeth to engage a board, a spring arranged to act against the said body and upon the arm to move the free end of the arm downwardly, and means for limiting the downward movement of the arm.

2. In a jointer feeder, a feeding band or belt comprising a plurality of rows of dogs each dog having a member constructed to engage and feed boards, each of the said dogs having a transverse passage through it of rectangular cross-section, and a plurality of bars arranged parallel to each other and passing through the said passages of the dogs whereby the dogs of each row of dogs are carried side by side upon a bar and are prevented from turning upon the bar.

3. In a jointer feeder, a feeding dog comprising a body portion having a transverse passage of polygonal cross-section, the said body having projecting bearings, a member pivotally supported in the said bearings and having a toothed outer surface constructed to engage a wooden board or the like, a spring acting upon the said body and upon the said member and tending to turn the member from the body, and means for limiting the outward movement of said member when acted upon by the said spring.

4. In a jointer feeder, a feeding band or belt comprising a plurality of rows of dogs each dog having a member constructed to engage and feed boards or the like, each of the said dogs having a transverse passage through it, and a plurality of bars constructed to pass through the said passages in the dogs, the said passages and the said bars being constructed to engage each other whereby the dogs cannot turn upon the said bars horizontally or vertically.

In testimony whereof I affix my signature.

PHILIP J. SMITH.