F. H. CLEMENT & L. B. WHIPPLE.

SELF FEEDING JOINTER.

APPLICATION FILED MAR. 28, 1911.

1,001,579.

Patented Aug. 22, 1911.

3 SHEETS—SHEET 1.

Fig. 1

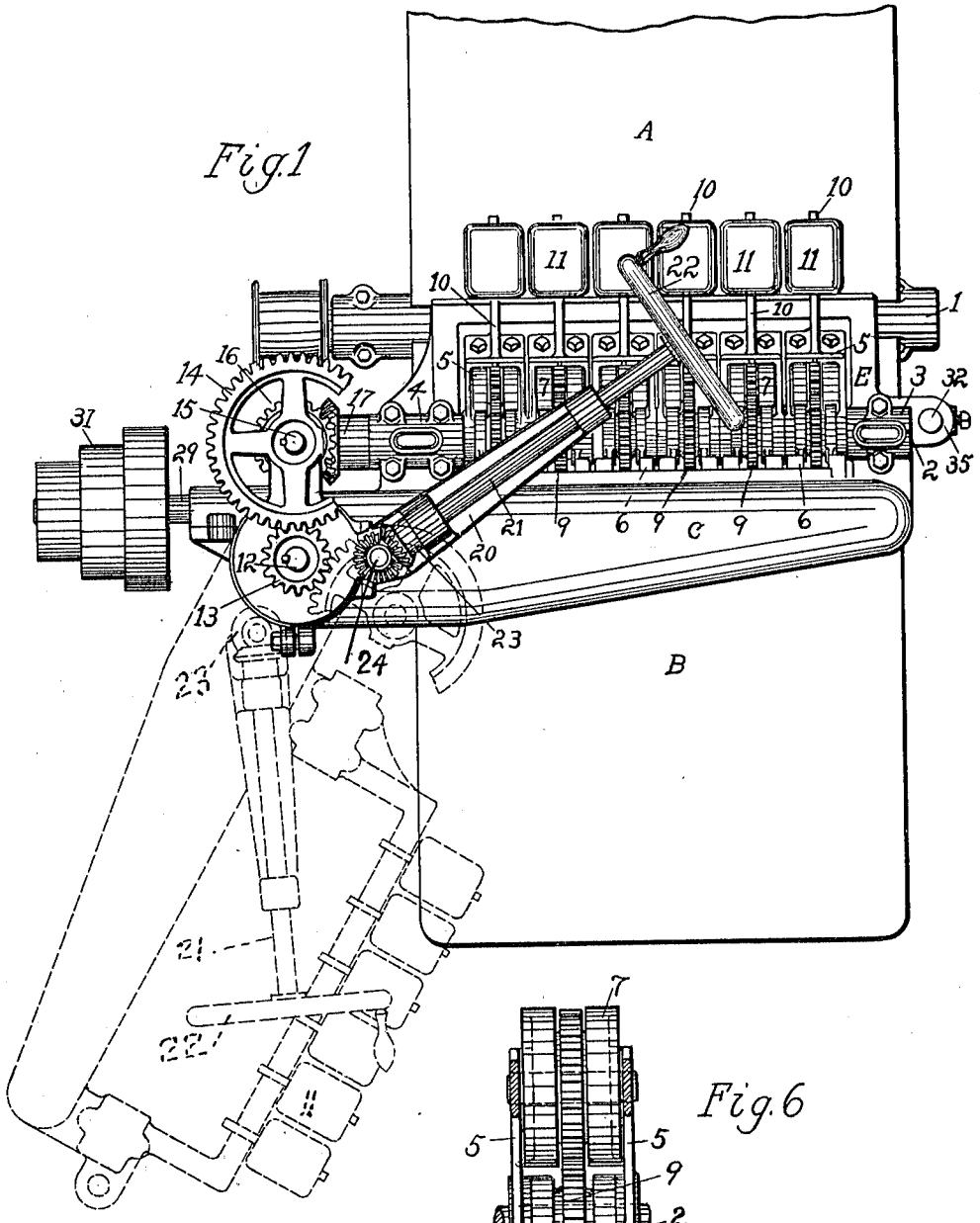
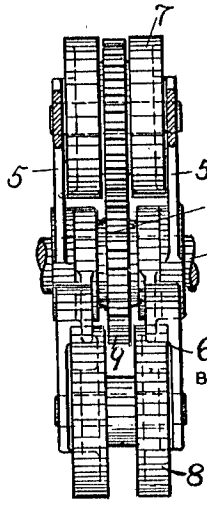


Fig. 6



WITNESSES

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3 SHEETS—SHEET 2.

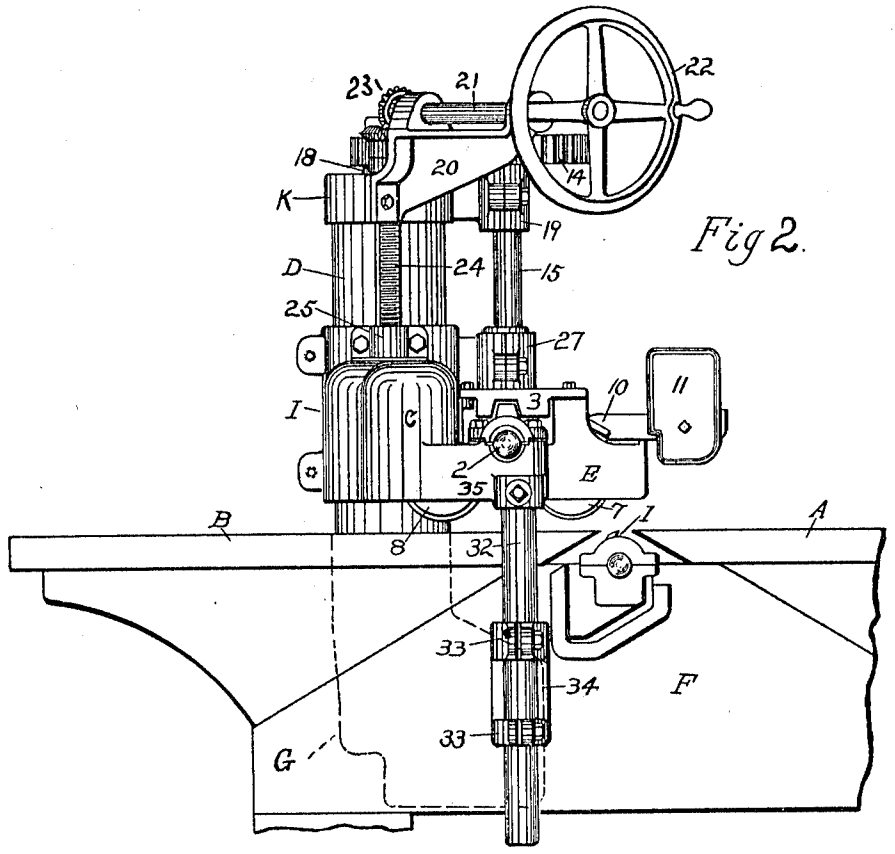
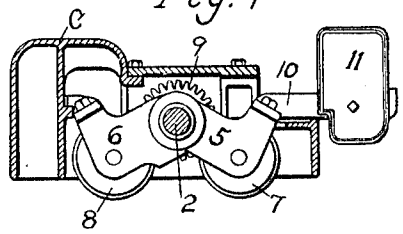


Fig 2.

Fig. 4



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3 SHEETS—SHEET 3.

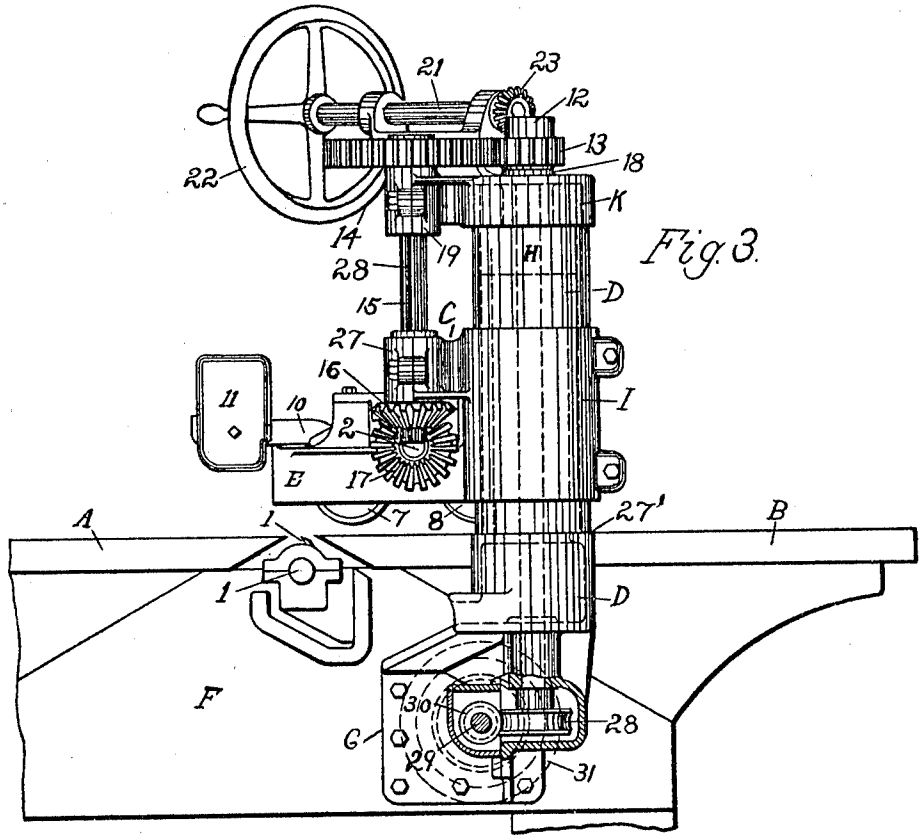

Fig. 3.

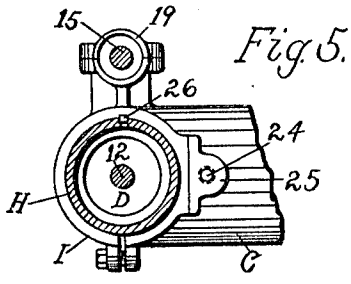

Fig. 5.

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UNITED STATES PATENT OFFICE.

FRANK H. CLEMENT AND LELAND B. WHIPPLE, OF ROCHESTER, NEW YORK, ASSIGNORS TO AMERICAN WOOD WORKING MACHINERY CO., OF ROCHESTER, NEW YORK, A CORPORATION OF PENNSYLVANIA.

SELF-FEEDING JOINTER.

1,001,579. Specification of Letters Patent. **Patented Aug. 22, 1911.**

Application filed March 28, 1911. Serial No. 617,419.

To all whom it may concern:

Be it known that we, FRANK H. CLEMENT and LELAND B. WHIPPLE, both of the city of Rochester, county of Monroe, and State of New York, have invented certain new and useful Improvements in Self-Feeding Jointers, of which the following is a specification.

The object of our invention is to provide a feeding device to be attached to an ordinary hand jointing or leveling machine by which the stock is carried through the machine and leveled after being started by hand; and it consists principally in the attachment of a horizontally swinging arm arranged over the rear or jointing table of the planer and carrying a self-adjusting feed mechanism which rests upon the lumber and pulls it over the cutter head and in supporting such swinging arm upon the main frame of the machine independently of the tables; and it consists further in such a combination of parts as shall convey power to the feeding mechanism in a direct and simple manner.

In the drawings, Figure 1 is a plan view of our invention. Fig. 2 is an elevation from the working side of the machine, and Fig. 3 is an elevation of the opposite side showing the driving mechanism. Fig. 4 is a cross section of the feed roll arm showing roll yokes and rolls in elevation. Fig. 5 is a horizontal section of the column supporting the feed works. Fig. 6 is a plan view of one pair of the roll yokes and rolls.

It is desirable in a machine of this kind to have the feeding mechanism easily removable from the working face of the tables whereby they may be clear for hand jointing on such work as cannot be properly done by the automatic feed.

A Figs. 1, 2 and 3 is the infeeding table of an ordinary jointer or hand planer, having an undercutting cylinder 1; B is the rear or jointing table, all of which parts are suitably fitted to the main frame F. C is an arm extending across the table B, and carrying the devices which feed the stock through the machine. E is a yoke or frame extending out from, and rigid with the arm C, and boxes 3 and 4 attached to it receive the shaft mechanism 2 which drives the feed. On this shaft are hung a series of yokes 5 and 6 which carry the feed rolls 7 and pressure rolls 8. These yokes swing freely on the shaft 2, and between the side arms of each yoke gears 9, are keyed to the shaft, meshing into gears secured to the roll sections centrally or thereabout as indicated in Fig. 6. The pressure rolls are not driven, their office being to hold the work down to the jointing table B. It will be seen that both sets of rolls 7 and 8 are free to rise and fall with the yokes 5 and 6, about the shaft 2 as a pivot. Levers 10 Figs. 1 and 4 are attached to the yokes 5 and weights 11 are secured on them, for the purpose of imparting sufficient pressure to rolls 7 to secure a strong feed: when required, rolls 7 may be corrugated to increase the feeding power.

D is a hollow cylindrical column which is machined true on that portion above the table B, and is provided at its lower end with a side flange G by means of which it can be secured rigidly to one side of the main frame F of the machine. Through the center of this column a vertical shaft 12 passes, having suitable boxes therein, and at its upper end a gear 13 is keyed, which meshes into a gear 14 on the vertical shaft 15; at the lower end of shaft 15 a bevel or miter gear 16 meshes into a corresponding gear 17 keyed to the roll driving shaft 2. The gear 16 has a long hub which is machined on its periphery and has a bearing in the box 27 on the arm C, Figs. 2 and 3, into which it is collared at both ends, and the shaft 15 passes freely through its bore and is held radially therein by a spline in the keyway 28, Fig. 3.

Surrounding the column D is a sleeve H, Figs. 3 and 5 which is free to revolve on the machined portion of the column and to which the end of the arm C is fitted by means of an encircling clamping socket I, or some equivalent means. The sleeve H rests upon a shoulder 27', machined upon the column D, which shoulder therefore supports the arm C and other superincumbent parts. At the upper end of the sleeve H the cap K is rigidly attached, having at the center the box 18 for the vertical shaft 12, and at one side the box 19 for the gear shaft 15.

It will be seen that the arm C with the feed mechanism and connected parts, and the cap K being all attached to the sleeve H, can be swung around the column D, to any required position, as for instance that shown

in dotted lines in Fig. 1, which thus clears the two tables A and B from the overhanging parts, and leaves them ready for hand jointing when required.

To the cap K a bracket 20 is bolted having bearings for a shaft 21, one end of which carries a hand wheel 22 and the other end a bevel gear 23 which meshes into its mate on the vertical screw 24. This screw has a bearing on the bracket 20 and is threaded into a nut 25 attached to the arm C. A spline 26, Fig. 5 between the sleeve H and clamping socket I of arm C, retains the relative radial position of the arm to the sleeve and the cap K, whereby the arm C and feed rolls can be raised by the screw 24, and operating hand wheel 22 to accommodate different thicknesses of stock on the tables, the shaft 15 sliding through the sleeve gear 16.

At the lower end of the central shaft 12 we attach a worm gear 28, Fig. 3 and a cross shaft 29 having bearings in the bracket G, and carrying a worm 30 and a driving pulley or cone 31 Figs. 1 and 3. Through this cone and shaft motion is received from a countershaft or other motive element and conveyed through shafts 12 and 15 to the feed rolls 7.

For the purpose of retaining the arm C in proper working relation to the cutter head we provide a post 32 which is fitted to slide freely through bearings 33, on bracket 34 Figs. 1 and 2. This bracket is bolted to the main frame F opposite to the bracket G.

The post 32 enters an ear 35 on arm C and is clamped therein by a set screw or other suitable device. By this means the arm C is held from swaying under the strain of the feed and at the same time it is free to be adjusted vertically by the screw 24 and wheel 22.

The advantages that we claim by above described construction are that the entire mechanism is self contained by reason of the attachment of the column D and post 32 to the main frame: that in a few seconds the feeding mechanism can be swung away from the tables, leaving them clear for hand work: that by the peculiar construction of the driving mechanism this adjustment is made simple and easy: that while in use the feed works are sufficiently flexible to accommodate a wide range of variation in the lumber, and the same time the action of the feed rolls insures perfect leveling of the under surface: there are also other minor advantages which appear in the descriptive matter.

We do not wish to be confined to the feeding devices shown, as they constitute only one form of mechanism which might be used for feeding the work in connection with our improvements. It is obvious that a series of feeding chains or endless carriers can be applied to the arm C and extension E, and operated by the shaft 2 similarly to the rolls shown and otherwise not affecting our construction. Other combinations of feed rolls might also be used.

The operation is as follows: The stock to be leveled is placed on the infeed table A and pushed forward by hand as in hand jointing until it passes the cutter head 1, and is caught by the driven rolls 7 which are preferably corrugated: the location of these rolls over the forward end of table B is such as to press the lumber down upon said table, and the pressure rolls 8 assist in this action. We thus get the stock started with the jointed face on the plane of the table B and it so continues through the machine insuring a perfectly level face on the lower side uninfluenced by the rough surface of the stock as it lies on table A with no pressure upon it. On account of the several sections of the feed and pressure rolls several narrow pieces may be fed through at the same time.

What we claim as our invention and desire to secure by Letters Patent is:

1. In a leveling or jointing planer a hollow cylindrical column rigidly secured to the machine frame at one side and independent of the tables and their adjusting mechanism, an arm pivoted on said column, feed mechanism carried by said arm, means for driving said feed mechanism and means for vertically adjusting said arm and feed works.

2. In a leveling or jointing planer, work supporting tables, an undercutting cylinder, a hollow cylindrical column attached to the machine frame, a feed driving shaft centrally located in said column, a feed works supporting arm swinging on said column, means for transmitting power from said central shaft to the feed mechanism for the purposes set forth.

3. In a leveling or jointing planer, a hollow cylindrical column attached to the machine frame, a sleeve fitted to turn freely thereon, a feed works supporting arm fitted to slide upon said sleeve, feed mechanism on said arm, a central shaft in the hollow column and means for transmitting power from said shaft to the feed mechanism.

4. In a leveling or jointing planer, a hollow cylindrical column attached to the main frame, a sleeve turning freely thereon and constructed to support a swinging arm carrying feed mechanism, a vertical shaft having boxes outside of the sleeve, gears on said shaft to receive and transmit power from a shaft centrally located within said hollow column to feed mechanism acting upon the work.

5. In a leveling or jointing planer, work tables, an undercutting cylinder, a feed works supporting arm pivoted to swing from a point outside the path of the work,

a series of driven feed rolls pivoted to swing to and from the work, a corresponding series of selfadjusting pressure rolls behind the feed rolls, whereby the work is held firmly to the jointing table.

6. In a leveling or jointing planer, a cylindrical column attached to the frame of the machine out of the path of the work, a sleeve fitted to turn thereon, an overhanging arm sliding on said sleeve, feed rolls carried by the arm, an adjusting screw journaled on said sleeve and arranged to adjust the overhanging arm and feed rolls vertically.

7. In a leveling or jointing planer, a cylindrical column secured to the machine frame at one side of the tables and independent thereof, a feed works supporting arm swinging on said column, an adjustable post secured to the machine frame opposite said main column, means for clamping the unsupported end of the arm to said post for the purposes set forth.

In testimony whereof we have hereto affixed our signatures in the presence of two witnesses.

FRANK H. CLEMENT.
LELAND B. WHIPPLE.

Witnesses:
DANIEL D. LOVELACE,
JOS. A. ENDERS.