

(No Model.)

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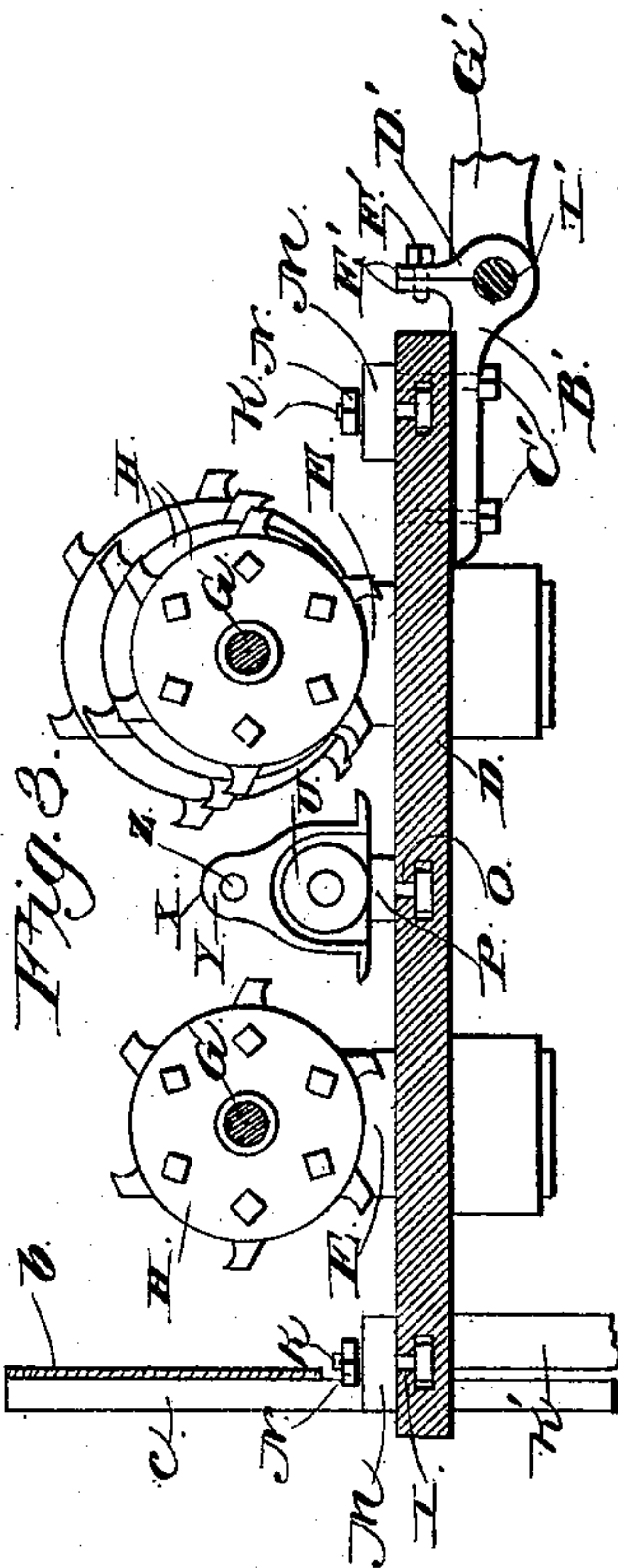
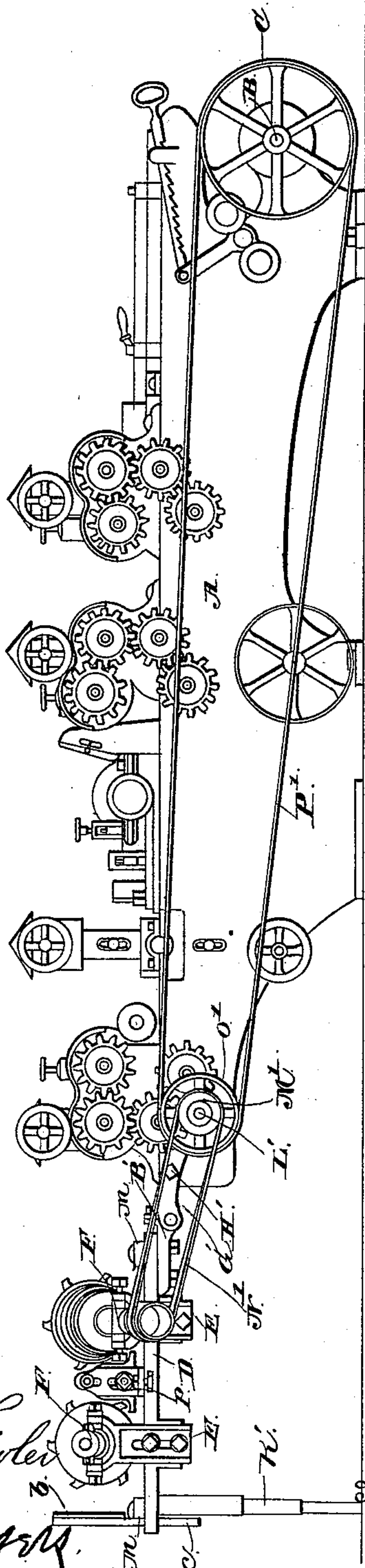
J. T. GRZYBOWSKI.

MACHINE FOR GROOVING LUMBER.

No. 396,399.

Patented Jan. 22, 1889.

Fig. 1.



Witnesses,

M. Taylor
E. Sigg

Inventor
Julian T. Grzybowski

By *His* Attorneys

C. How & Co

(No Model.)

2 Sheets—Sheet 2.

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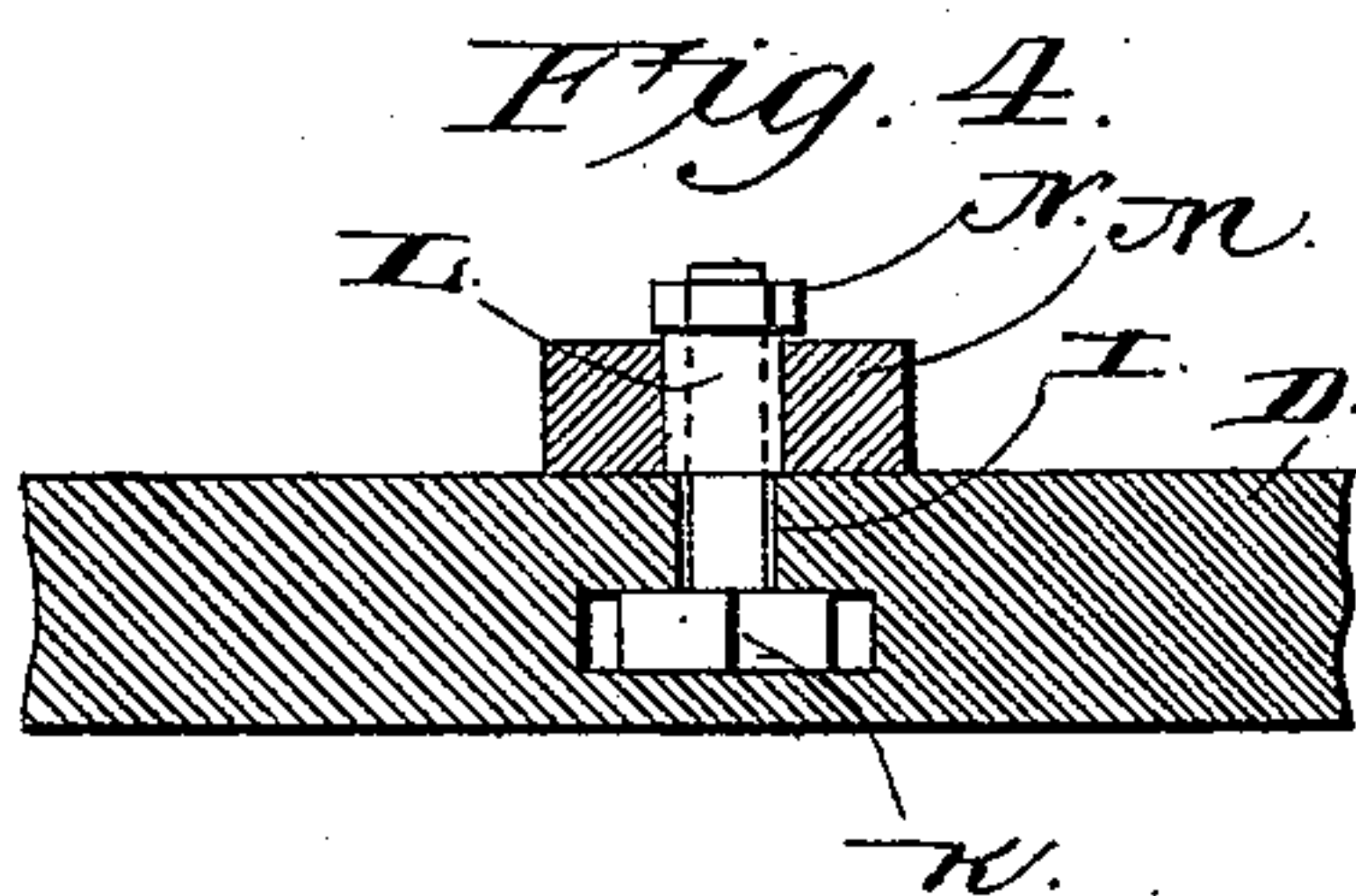
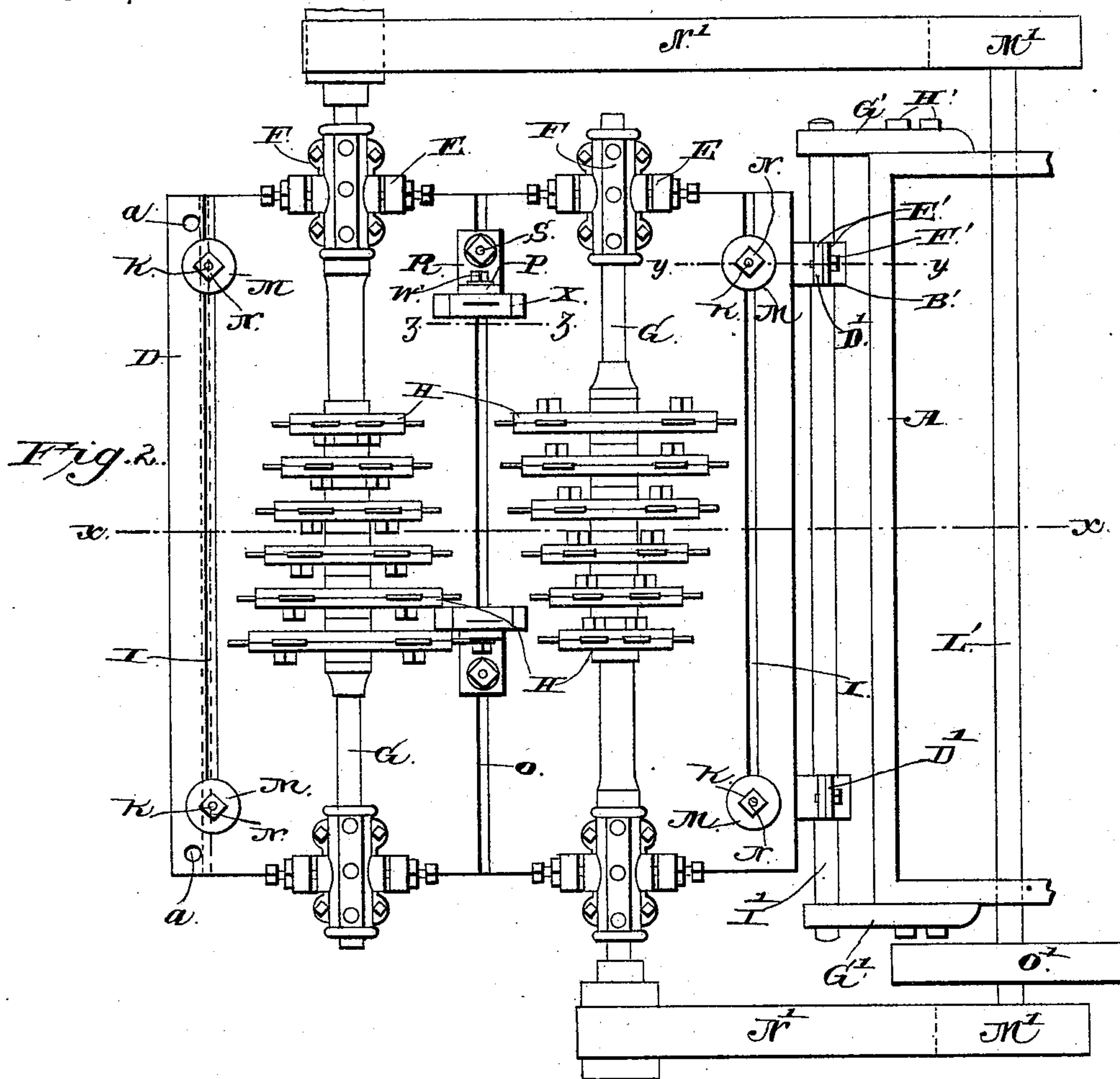


Fig. 5.

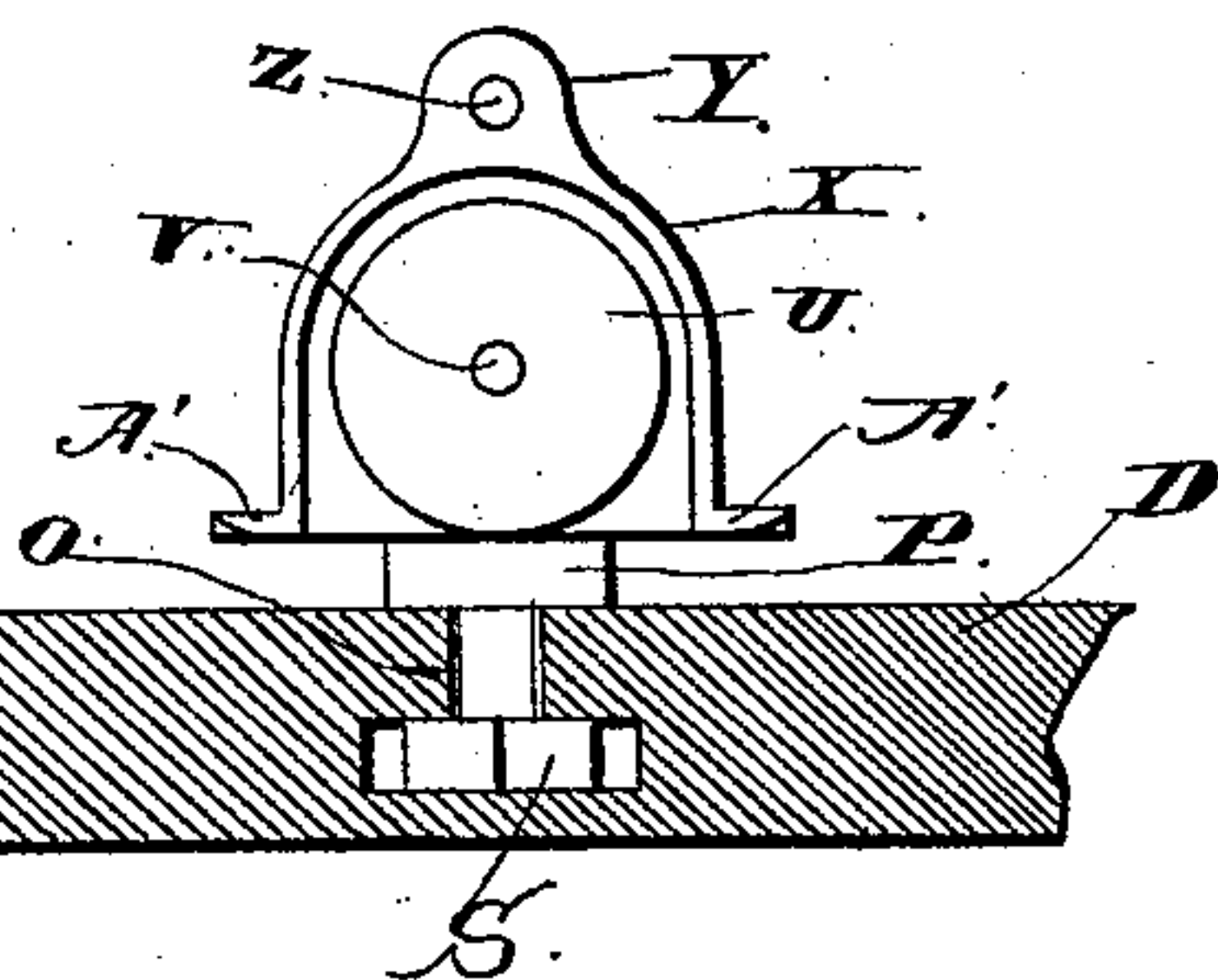
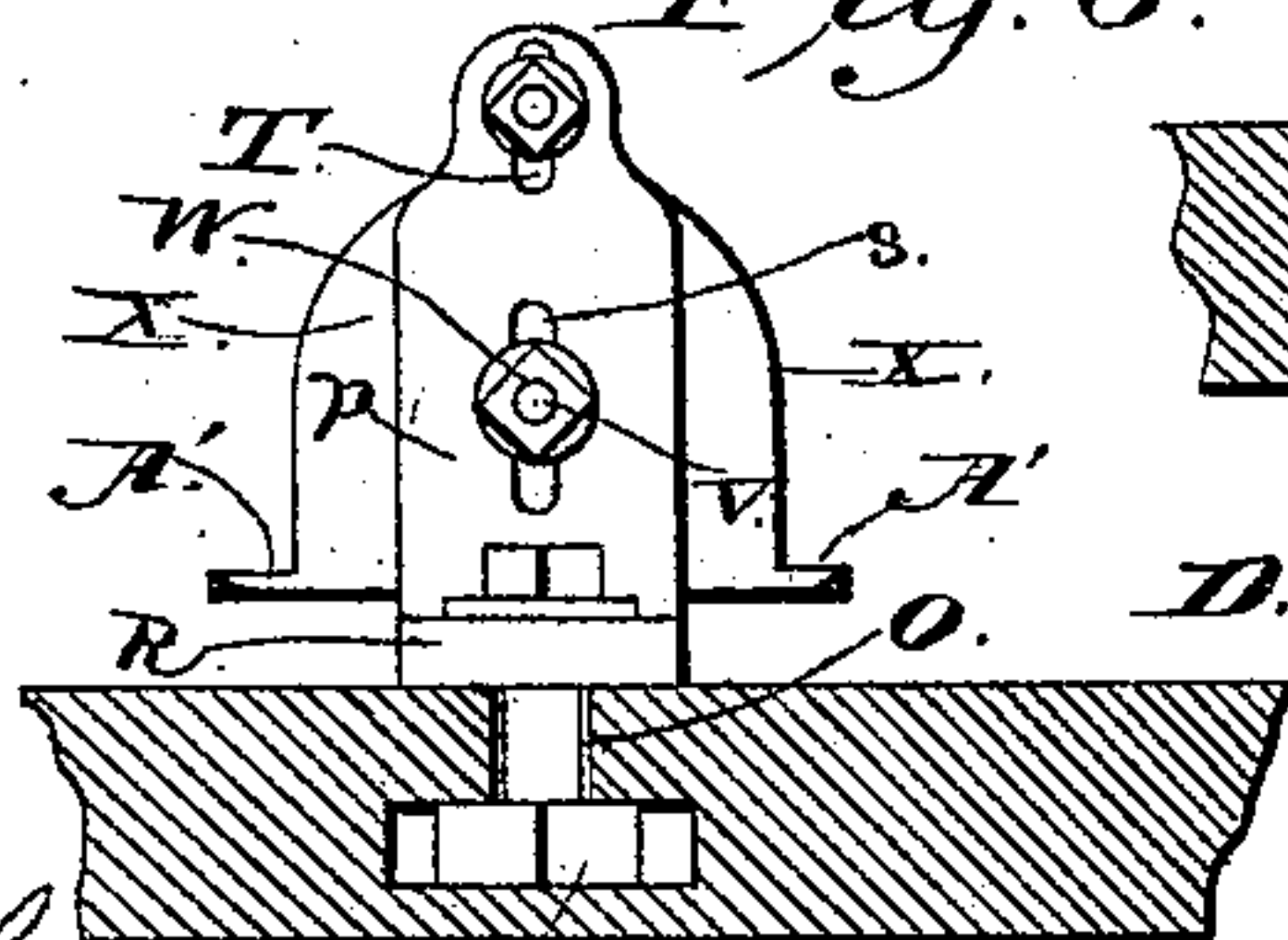


Fig. 6.



Witnesses

M. Fowler.
E. Siggus.

Inventor.
Julian T. Grzybowski.

By *his* Attorneys

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

JULIAN T. GRZYBOWSKI, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR OF ONE-HALF TO RICHARD E. BUTTERWORTH AND JAMES LOWE, OF SAME PLACE.

MACHINE FOR GROOVING LUMBER.

SPECIFICATION forming part of Letters Patent No. 396,399, dated January 22, 1889.

Application filed June 14, 1888. Serial No. 277,104. (No model.)

To all whom it may concern:

Be it known that I, JULIAN T. GRZYBOWSKI, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Improvement in Machines for Grooving Lumber, of which the following is a specification.

My invention relates to an improvement in machines for grooving lumber; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

The object of my invention is to provide a grooving-machine which is adapted to be connected directly to the discharge end of a planing or matching machine and to be operated by a belt driven by the driving-pulley of the planing or matching machine; and a further object of my invention is to provide a grooving-machine with guide-pulleys for directing the lumber under the cutters as it leaves the planer or matcher, and to provide shields whereby chips or shavings are prevented from getting between the said pulleys or rollers and the board which is being grooved.

In the accompanying drawings, Figure 1 is a side elevation of a grooving-machine embodying my improvements, showing the same attached to a planing-machine. Fig. 2 is a top plan view of the grooving-machine. Fig. 3 is a detail sectional view taken on the line *xx* of Fig. 2. Fig. 4 is a vertical sectional view of my grooving-machine, taken on the line *yy* of Fig. 2. Fig. 5 is a similar view taken on the line *zz* of Fig. 2. Fig. 6 is a detail elevation of one of the shields.

A represents a planing or matching machine, which is of the usual well-known construction, and is provided at its front end with the usual driving-shaft, B, having the driving-pulley C.

D represents the bed-plate or table of my improved grooving-machine, in opposite sides of which are secured vertically-adjustable standards E, having bearings F pivoted in their upper ends and adapted for the attachment of the oppositely-inclined shafts G, having the cutters H. Said standards, bearings, and inclined shafts are of the same construction

as those described in my pending application for Letters Patent of the United States, Serial No. 253,989, filed November 1, 1887, and hence are not more fully described herein. In the upper side of the bed or table, near the front and rear sides thereof, are transverse T-shaped grooves I.

K represents bolts, which have their heads fitted in the said grooves and guided therein, the upper end of the bolts projecting above the top of the table or bed, and there being two of the said bolts in each groove near opposite sides of the table or bed. On each bolt is fitted a cylindrical sleeve or bushing, L, which bears upon the top of the table or bed, and on each of the said bushings or sleeves is journaled a horizontal roller, M, of suitable size.

Clamping-nuts N are screwed to the upper ends of the bolts K and bear upon the bushings, the function of the said clamping-nuts being to secure the bolts rigidly in the grooves at any desired adjustment, and the function of the rollers M being to bear against the opposite edges of the board as the same is discharged from the planing or matching machine and is grooved by my improved grooving-machine, the said rollers guiding the said board over the table or bed D. Midway between the grooves I is a similar T-shaped groove, C.

P represents a pair of brackets or standards, which are provided at their lower ends with outwardly-extending horizontal arms R, which bear upon the table or bed. Clamping-bolts S have their heads fitted and adapted to slide in the groove O and serve to clamp the standards P to the table-top at any desired distance apart. The vertical portions of the said standards or brackets are provided each with a vertical slot, S, and a vertical slot, T, the latter being in line with and above the former.

U represents a pair of rollers which are similar to the rollers M, are arranged in a vertical position, and are journaled on spindles V, the outer ends of which extend through the slots S and are provided with clamping-nuts W, whereby the said spindles may be secured at any desired vertical adjustment, and consequently enable the rollers U to be vertically adjusted and adapted to bear upon the upper sides of the boards which are being

grooved. The function of these rollers is to keep the board bearing snugly on the bed or table while the grooving-cutters are in operation, so as to cause the grooves to be cut in the board throughout the entire length thereof at a uniform depth.

It is essential to the perfect operation of the grooving-machine that chips and shavings be prevented from being caught between the rollers U and the board; and to this end I provide a pair of horseshoe-shaped shields, X, which are arranged over the rollers U and are provided at their upper ends with ears Y. Clamping-bolts Z pass through openings in the said ears and through the vertical slots T and serve to secure the guards to the standards at any desired adjustment. The lower ends of the guards are provided with feet A', as shown, which feet bear against the upper side of the board which is being grooved and serve to prevent chips or shavings from passing under the rollers U. From the front side of the table or bed project a pair of brackets or arms, B', which have their inner ends secured to the under side of the table or bed by means of bolts C'. The outer ends of the brackets are provided with split bearings D', having lugs or ears E', and clamping-bolts F' extend through the said lugs or ears, as shown.

G' represents a pair of brackets or plates, which are secured to opposite sides of the frame of the planing or matching machine, at the rear end thereof, by means of bolts H'. The said brackets or arms are provided at their outer ends with transverse openings, and a shaft or pintle-rod, I', extends through the said openings and through the split bearings D' of the grooving-machine, and serves to hinge or pivot the grooving-machine to the rear end of the planing or matching machine, so that said grooving-machine may be turned to a horizontal position when it is desired to use it, and may be folded down on the rear end of the planing or matching machine, where it will be out of the way when it is not desired to use the grooving-machine. By reason of the split bearings D' and the clamping-bolts F', with which their lugs are provided, the grooving-machine may be clamped to the pintle shaft or rod at any desired lateral adjustment.

The grooving-machine is provided near its outer side with a telescopic or sliding leg, K', by means of which the bed or table may be supported in a horizontal position and extended from the planer or matcher.

In order to drive the inclined shafts which carry the cutters, I journal a counter-shaft, L', in openings near the rear end of the frame of the planer or matcher, and provide the said counter-shaft with pulleys M', which are connected to the pulleys on the inclined shafts by means of endless belts N', and also provide the said counter-shafts with a pulley, O', which is connected by a third endless belt, P', to the driving-pulley C of the planer or matcher.

From the foregoing description it will be understood that my grooving-machine is exceedingly compact, so as to take up very little room, and that it may be very readily arranged for operation and disconnected from the planer or matcher.

a a represent openings made in the opposite corners of the front side of the table. b designates a shield having depending legs c at its ends designed to fit in the openings a a in the table.

The shield is to protect the operator from being struck by pieces of the machinery in case the machine should break.

Having thus described my invention, I claim—

1. The combination, with a planing or matching machine, of a grooving-machine hinged or pivoted at its feed end directly to the rear end of the planer or matcher and adapted to be raised to a horizontal position or folded down out of the way, substantially as described.

2. The combination, with the planing-machine having the counter-shaft I', adapted to be driven by the driving-shaft B, of the grooving-machine pivoted at its feed end directly to the rear or discharge end of the planer or matcher, and having the oppositely-inclined shafts carrying the cutters, and provided with pulleys connected to pulleys on the counter-shaft by suitable belts, substantially as described.

3. In a grooving-machine adapted to be connected to a planer or matcher, the combination of the table or bed having the bearings D', the brackets or plates G', adapted to be secured to and disconnected from the planer or matcher, and the pintle shaft or rod extending through openings in the plates G' and in the bearings D', whereby the grooving-machine may be hinged to one end of the planer or matcher, substantially as described.

4. The combination, in a grooving-machine adapted to be attached to a planer or matcher, of the table or bed D, having the separate brackets B', provided with the split bearings D' and the clamping-bolts therefor, the separate plates or brackets G', adapted to be attached to one end of the planer-frame, and the pintle rod or shaft fitted in openings in said brackets or plates and in the split bearings D', substantially as described.

5. In combination with a planing or matching machine, the grooving-machine hinged or pivoted to the discharge end of said planing-machine, said hinge or pivotal attachment of the two machines being capable of lateral adjustment, as set forth.

6. In combination with the planer having the pintle rod or shaft I' secured rigidly thereto, the grooving-machine having affixed to its table or bed the brackets B', provided with bearings D', to fit the shaft I' and pivot the grooving-machine thereto, said bearings D' being laterally adjustable on the pintle-shaft I', as set forth.

7. In a grooving-machine, the combination of the cutters, the rollers M, arranged at the feed and discharge end of the machine on opposite sides of the cutters, said rollers being
5 arranged in pairs set at a distance apart to receive the board between them, and the rollers U, arranged between the cutters and set at a distance apart, the rollers U bearing on top of the board and the rollers M bearing against
10 the sides thereof, as set forth.

8. In a grooving-machine, the table or bed having the standards P laterally adjustable transversely across the table, each standard being independently adjustable, the rollers
15 U, journaled in said standards and adapted to bear on the top of the board to be worked upon, as set forth.

9. In a grooving-machine, the table or bed having the standards P laterally adjustable transversely across the table, each standard being independently adjustable, the rollers U, journaled in said standards and adapted to bear on the top of the board to be worked upon, and the guards or shields X, attached
20 to the standards on the outer side of the rollers and having the feet A', to bear against the upper side of the board.

10. The combination, in a grooving-ma-

chine, of the standards P, secured to the table or bed and having the vertical slots, the rollers U, the spindles therefor secured and vertically adjustable in the slots, and the guards or shields X, fitted over the said rollers and having the clamping-bolts securing them to the standard, said clamping-bolts being also
30 adjustable in the slots, substantially as described.

11. In a grooving-machine, the table having the openings a at one end, combined with the transverse shield b, arranged across the table,
35 having depending legs c at the ends designed to fit in the openings a, as set forth.

12. In combination with the planing or matching machine, the grooving-machine hinged or pivoted at its feed end directly to
45 the discharge end of the planer or matcher, the outer or discharge end of the grooving-machine being provided with a leg or standard, K, as set forth.

In testimony that I claim the foregoing as
50 my own I have hereto affixed my signature in presence of two witnesses.

JULIAN T. GRZYBOWSKI,

Witnesses:

E. G. SIGGERS,

J. H. SIGGERS.