(No Model.) 2 Sheets—Sheet 1.

D. SCANLAN.

MACHINE FOR GROOVING CHAIR SEATS.

No. 452,922. Patented May 26, 1891.

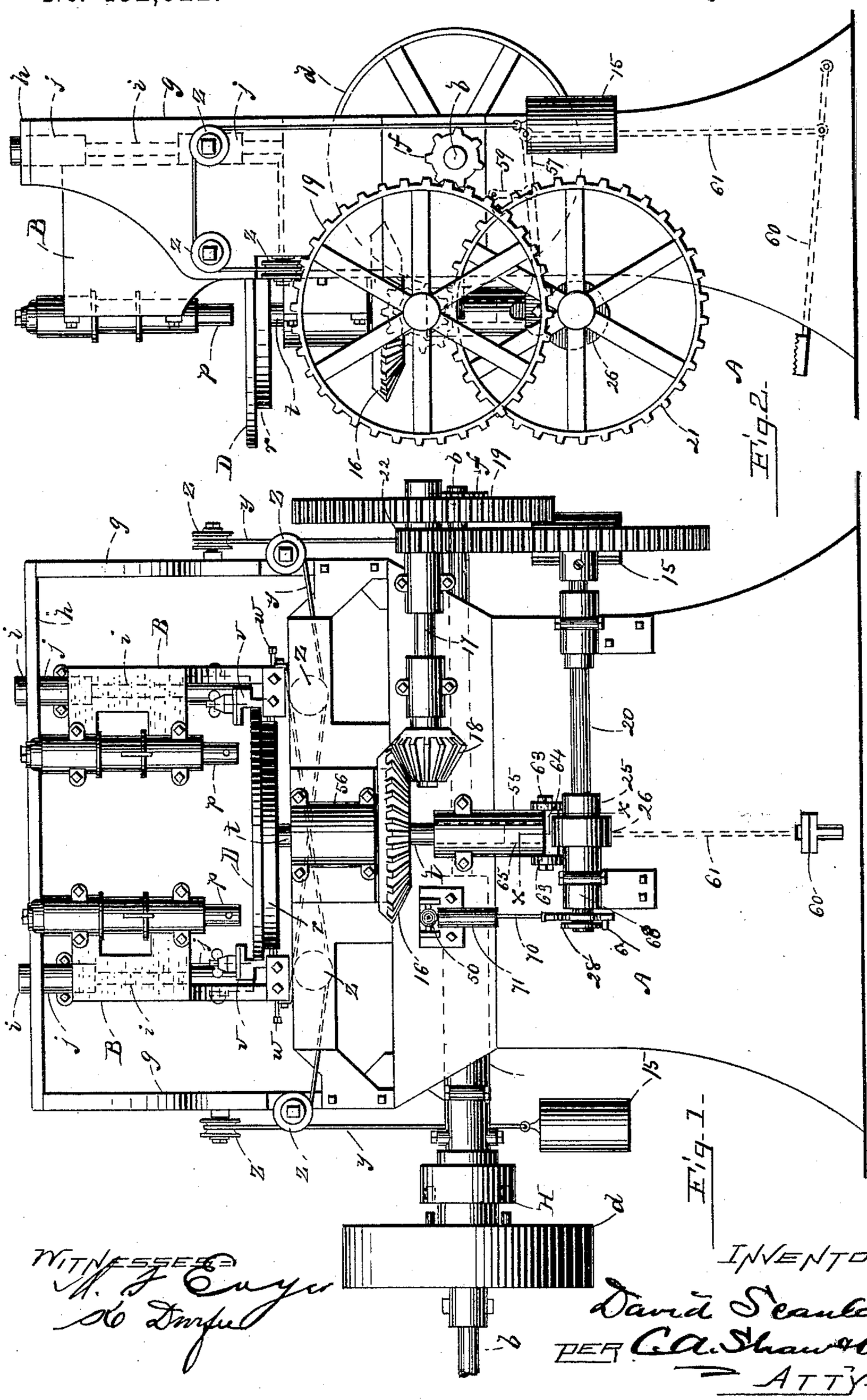

Fig. 2.

Fig. 1.

WITNESSES=
W. F. Cuyler
A. Dwyer

INVENTOR=
David Scanlan,
PER C. A. Shawkey
ATTY'S.

(No Model.) 2 Sheets—Sheet 2.

D. SCANLAN.

MACHINE FOR GROOVING CHAIR SEATS.

No. 452,922. Patented May 26, 1891.

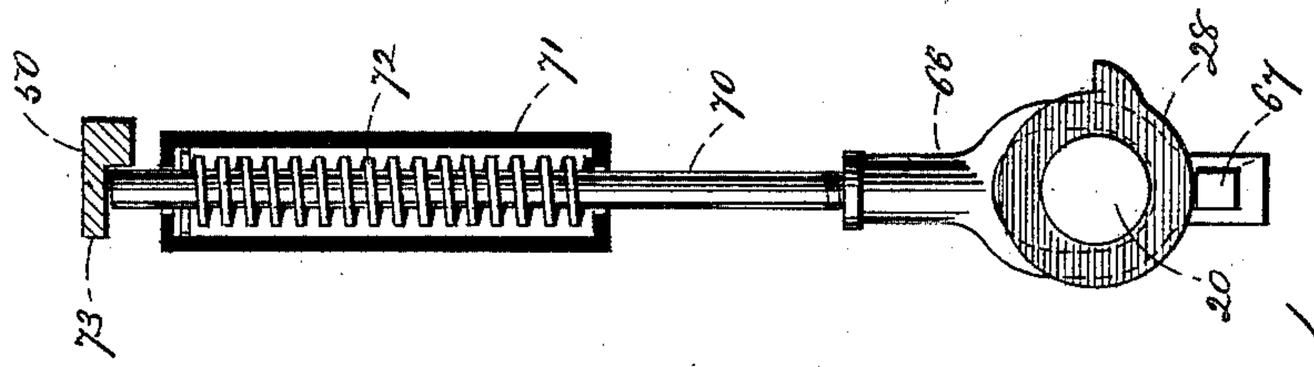

Fig. 6.

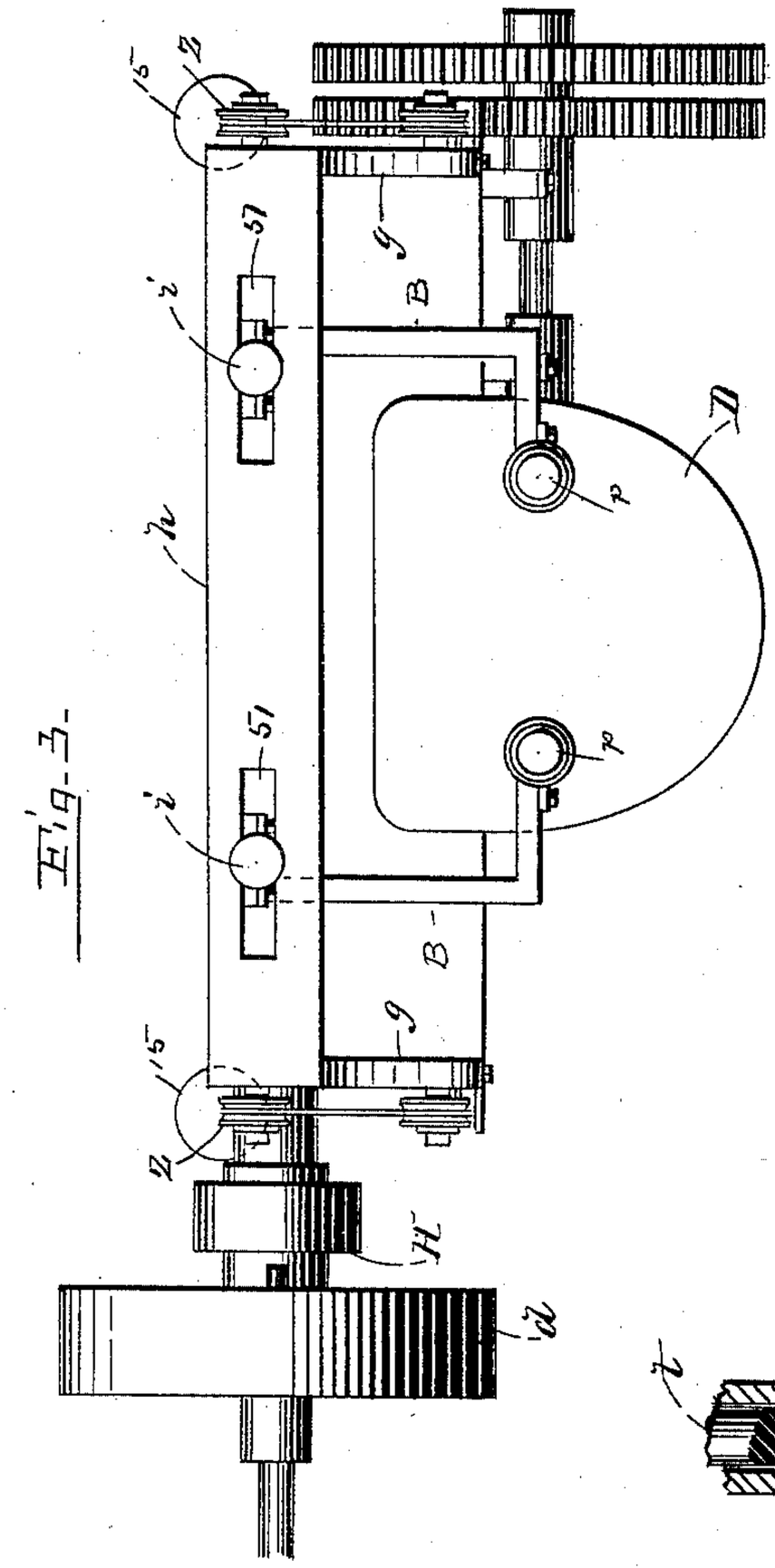

Fig. 3.

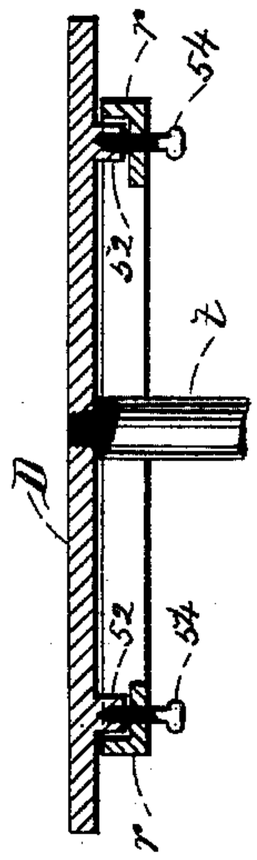

Fig. 4.

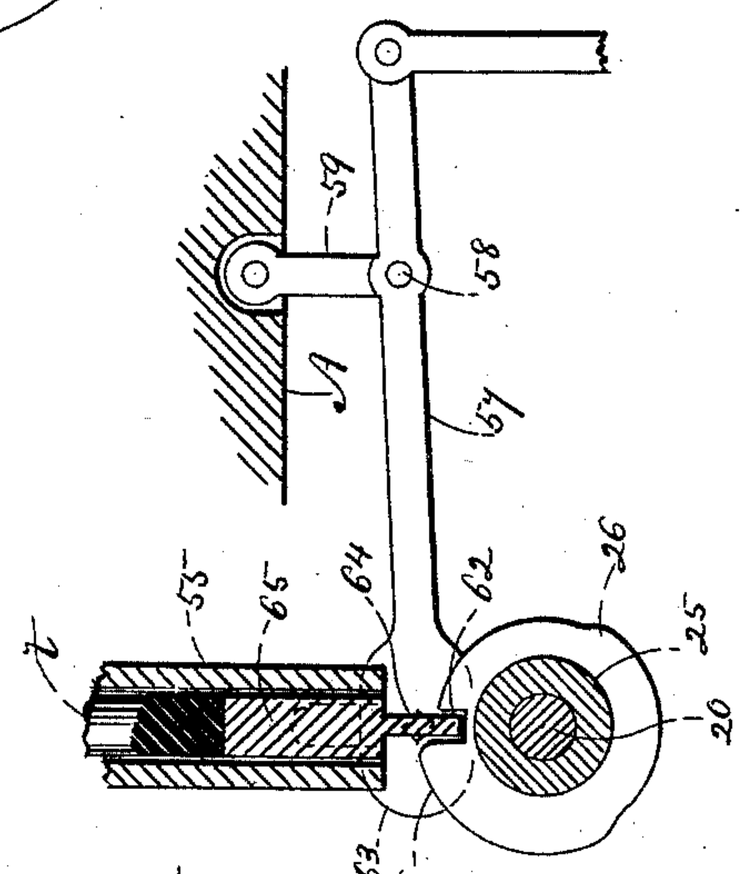

Fig. 5.

WITNESSES:
H. J. Cuyer.
H. Dwyer

INVENTOR:
David Scanlan,
PER C. A. Snow & Co.
ATTYS.

UNITED STATES PATENT OFFICE.

DAVID SCANLAN, OF ASHBURNHAM, ASSIGNOR OF ONE-HALF TO A. D. WAYMOTH & CO., OF FITCHBURG, MASSACHUSETTS.

MACHINE FOR GROOVING CHAIR-SEATS.

SPECIFICATION forming part of Letters Patent No. 452,922, dated May 26, 1891.

Application filed December 31, 1890. Serial No. 376,417. (No model.)

To all whom it may concern:

Be it known that I, DAVID SCANLAN, of Ashburnham, in the county of Worcester, State of Massachusetts, have invented certain new and useful Improvements in Machines for Grooving Chair-Seats, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of my improved machine for grooving chair-seats; Fig. 2, an end elevation of the same; Fig. 3, a top plan view; Fig. 4, a transverse section of the chair, table, and pattern; Fig. 5, a sectional elevation illustrating the table-actuating mechanism, and Fig. 6 a like view showing details of the clutch-releasing mechanism.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My invention relates especially to a machine for grooving the frame of a chair-seat to receive the wooden strip for binding the cane seat thereto; and it consists in certain novel features hereinafter fully set forth and claimed, the object being to produce a simpler, cheaper, and more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation

In the drawings, A represents the bed or standard of the machine, in which a horizontal shaft *b* is journaled, said shaft bearing a loose drive-wheel *d* at one end and a pinion *f* at its opposite end. A spring-separated clutch mechanism H of ordinary construction is actuated by a horizontal lever 50, which projects through the front of the body A and by which the pulley *d* may be made fast to the shaft. At each end of the bed a standard *g* is arranged vertically, said standards being connected at their tops and bottoms by a cross-bar *h*, which are slotted longitudinally at 51. Two vertically-arranged rods *i* are laterally adjustable, respectively, in said slots, and are provided with rotatable sleeves *j*. A right-angled arm B is mounted on the sleeves *j* of each rod *i*, which serves as a pivot therefor. In the free end of each of said arms a rotary chuck *p* is arranged vertically and are adapted, respectively, to receive a grooving tool or bit.

A horizontal table D is mounted on a vertical rotary shaft *t*, journaled in the front of the machine, said table conforming peripherally to the shape of the chair-seat. The table is provided with clamps *v* for securing said seat to the upper face thereof and on its under side with lugs 52. (See Fig. 4.) A pattern *r*, conforming peripherally to the shape of the groove to be formed in the chair-seat, is attachable to said lugs by screws 54. It is designed to employ a series of said patterns of different sizes interchangeable on the table. A horizontal guide-screw *w* passes through the lower end of each arm B and contacts with the edge of the pattern *r*. Cords *y* have an end respectively secured to the opposite arms B and pass over pulleys *z*, their opposite ends being provided with weights 15. The purpose of said cords and weights is to hold the guide-screws *w* in contact with the edge of the pattern *r*, so that the bits in the chuck *p* shall be guided thereby to form a groove in the seat, conforming in outline to said pattern. The table-spindle *t* is fitted to slide vertically in its bearings 55 and 56, and a beveled gear 16 is splined thereon. A stub-shaft 17 on the body A has a beveled pinion 18 meshing with said gear 16. A large gear 19 on said stub-shaft meshes with the pinion *f* on the drive-shaft. A horizontal shaft 20 is journaled on the bed and bears a gear 21, meshing with a pinion 22 on said stub-shaft. A sleeve 25 on the shaft 20 bears a cam 26.

A horizontal lever 57 passes centrally through the frame A above the cam 26, and is pivoted at 58 (see Fig. 5) to a pendent lever 59, pivoted within said bed. A treadle-lever 60 passes centrally through the frame and is pivoted at the rear thereof. A rod 61 connects said treadle with the inner end of the lever 57. The cam 26 is provided with a radial slot 62. (See Fig. 5.) The outer end of the lever 57 is forked or provided with

ears 63, in which a plate 64, normally resting in the cam-slot 62, is pivoted. Said plate is provided with a vertical spindle 65, which plays in the bearings 55 (see Fig. 5) and forms a step on which the table-spindle *t* rotates.

On the inner end of the cam-shaft 20 a cam 28 is mounted. A link 66 plays loosely on the shaft 20 between the cam 28 and shaft-box 68, said link being provided with a stud 67 (see Fig. 6) in position to be engaged by said cam and forced downward. The link is provided with a rod 70, which slides vertically through a box 71, secured to the bed A below the lever 50. A coiled spring 72 (see Fig. 6) within said box acts expansively to force said rod upward. The lever 50 normally rests on the top of the rod when the clutch H is disengaged, and is provided with a notch or rabbet 73, (see Fig. 6,) into which said rod is projected by its spring to lock said lever when moved to engage said clutch. The face of the cam 26 is divided into three tracks, which consecutively increase in depth. The gears are timed to impart two complete rotations to the table to one rotation of said cam. In use the seat-frame is secured to the rotary table D by the clamps *v*. The guide-screws *w* in the arms B are set so that the grooving-bits in the chucks *p* will engage said seat-frame in the proper place, and are held in engagement with the pattern *r* by the weighted cords, as described, the arms B swinging freely on their pivots. The lever 50 is moved from left to right, as viewed in Fig. 1, setting the spring-clutch H and imparting motion to the drive-shaft. At the same time the spring 72 forces the rod into the notch 73 and locking said lever to prevent the clutch-spring disconnecting said clutch. The treadle 60 being depressed, the plate 64 is elevated thereby sufficiently to take it out of the cam-slot 62 to rest on the face of said cam. This upward movement of the plate forces the table-spindle *t* upward and the seat on the table D into engagement with the grooving-tools in the chucks *p*. Said chucks are connected with power and rotated in any suitable manner. The gears are so timed that when the table is forced upward by the treadle against the bits it makes a half-revolution while thus engaged, a second half occurring while being fed by the first cam-track. There being two boring-tools, the respective grooves formed thereby meet at the end of a half-revolution of the table. Tracks act on the table consecutively during its second revolution, gradually feeding the chair-seat against the bits in a manner which will be readily understood by all conversant with such matters. At the completion of a revolution of the cam 26 the plate 64 drops into the cam-slot 62, permitting the table to fall away from the bits sufficiently to remove the seat. At the same time the cam 28 engages the stud 67 on the link 66, forcing said link downward and freeing the lever 50, so that the spring of the clutch H may act to disconnect the same and loosen the pulley *d*, stopping the machine.

Instead of cords and weights, springs may be employed for holding the guides in engagement with the pattern-table.

Having thus explained my invention, what I claim is—

1. In a machine for grooving chair-seat frames, the combination of a pattern-table mounted on a rotary sliding shaft geared to the driving-shaft, a feed-cam actuated by said driving-shaft for intermittently moving the table-shaft longitudinally, treadle-released locking mechanism for said cam, arms mounted to swing on the machine-frame and bearing the grooving-tools, adjustable guides on said arms peripherally engaging the pattern, and a tension mechanism for said arms, arranged to operate substantially as described.

2. In a machine for grooving chair-seats, the combination of a body, a drive shaft and pulley, a spring-clutch therefor, a horizontal stub-shaft, a vertically-sliding shaft geared thereto, a pattern-table on said sliding shaft, a shaft geared to the stub-shaft and bearing a feed-cam for engaging the sliding shaft, arms fitted to swing horizontally on the frame and bear grooving-tools, mechanism actuated by a cam on the cam-shaft for freeing said clutch, and a tension for holding said arms in engagement with the pattern-table, substantially as described.

3. In a machine for grooving chair-seat frames, a drive-shaft, loose pulley, and spring-clutch mechanism, in combination with a rotary pattern-table mounted on a sliding shaft, locking mechanism for said clutch, and mechanism for automatically feeding said shaft longitudinally and releasing said clutch, substantially as described.

4. In a machine for grooving chair-seat frames, the rotary pattern-table mounted on a sliding shaft, in combination with a treadle-actuated step for said shaft, and a cam for feeding said shaft and provided with a slot adapted to receive said step, substantially as and for the purpose set forth.

5. In a machine for grooving chair-seat frames, the rotary pattern-table and sliding shaft, in combination with a treadle-actuated step therefor, the cam-shaft bearing the feed-cam 26, provided with the slot 62 for receiving said step at a complete revolution of said cam, substantially as and for the purpose set forth.

6. In a machine for grooving chair-seat frames, the swinging chucks and tension mechanism, in combination with the sliding rotary table, a feed-cam therefor, and a treadle-actuated step for the table-shaft fitted to enter a slot in said cam, substantially as described.

7. In a machine for grooving chair-seat

frames, the drive-shaft, pulley, and spring-clutch, in combination with the rotary sliding pattern-table, a treadle-actuated step therefor, a cam-shaft actuated by the driving-shaft, a feed-cam thereon provided with a slot for receiving said step, a spring-pushed link on the cam-shaft for locking said clutch when set, and a cam for releasing said clutch at the completion of a revolution of the feed-cam, substantially as described.

DAVID SCANLAN.

Witnesses:
CARROLL Z. PARKER,
F. C. CURRIN.