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C. S. FIFIELD.

SKIVING MACHINE.

No. 459,231. Patented Sept. 8, 1891.

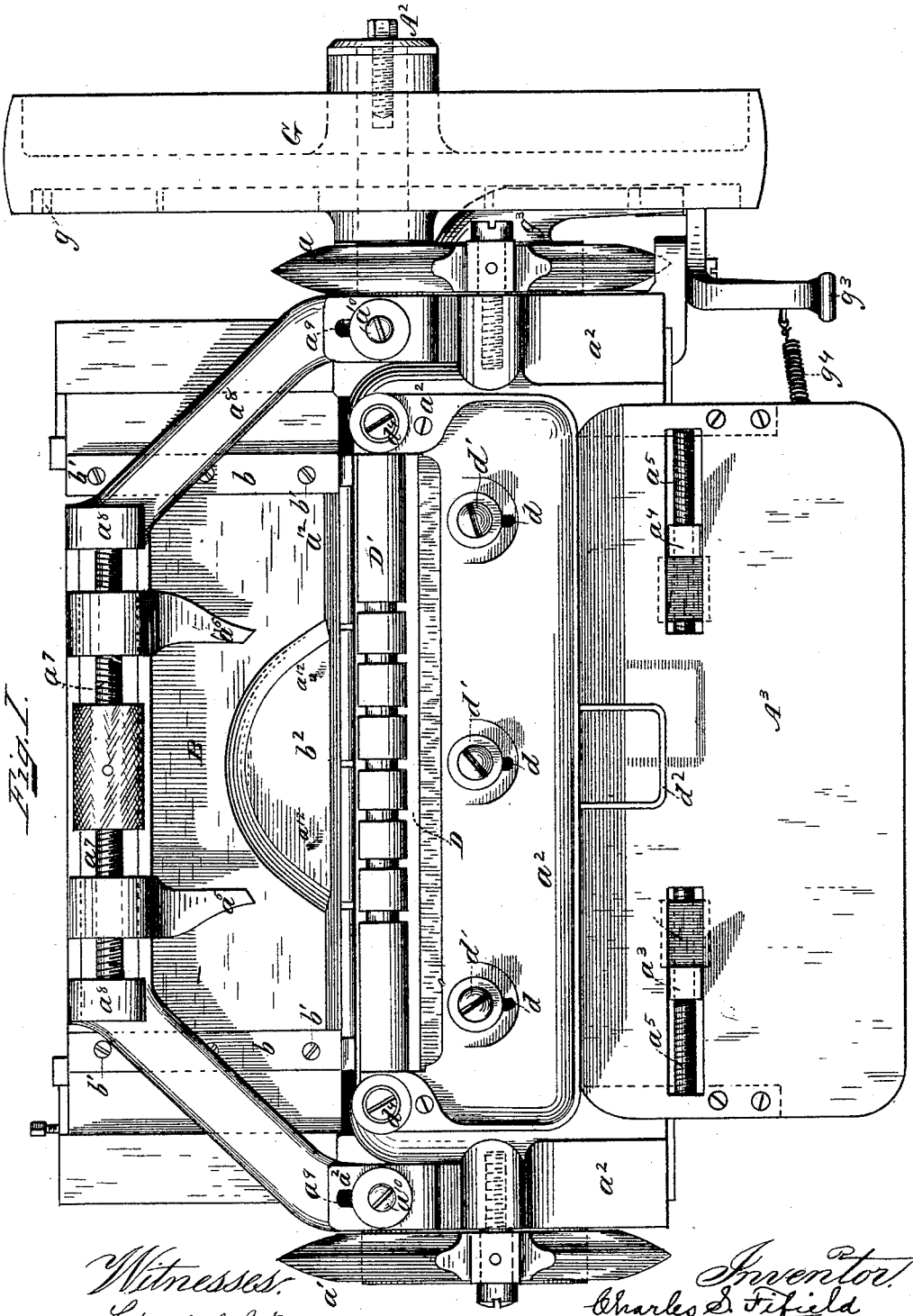

Fig. 1.

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Inventor:
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C. S. FIFIELD.

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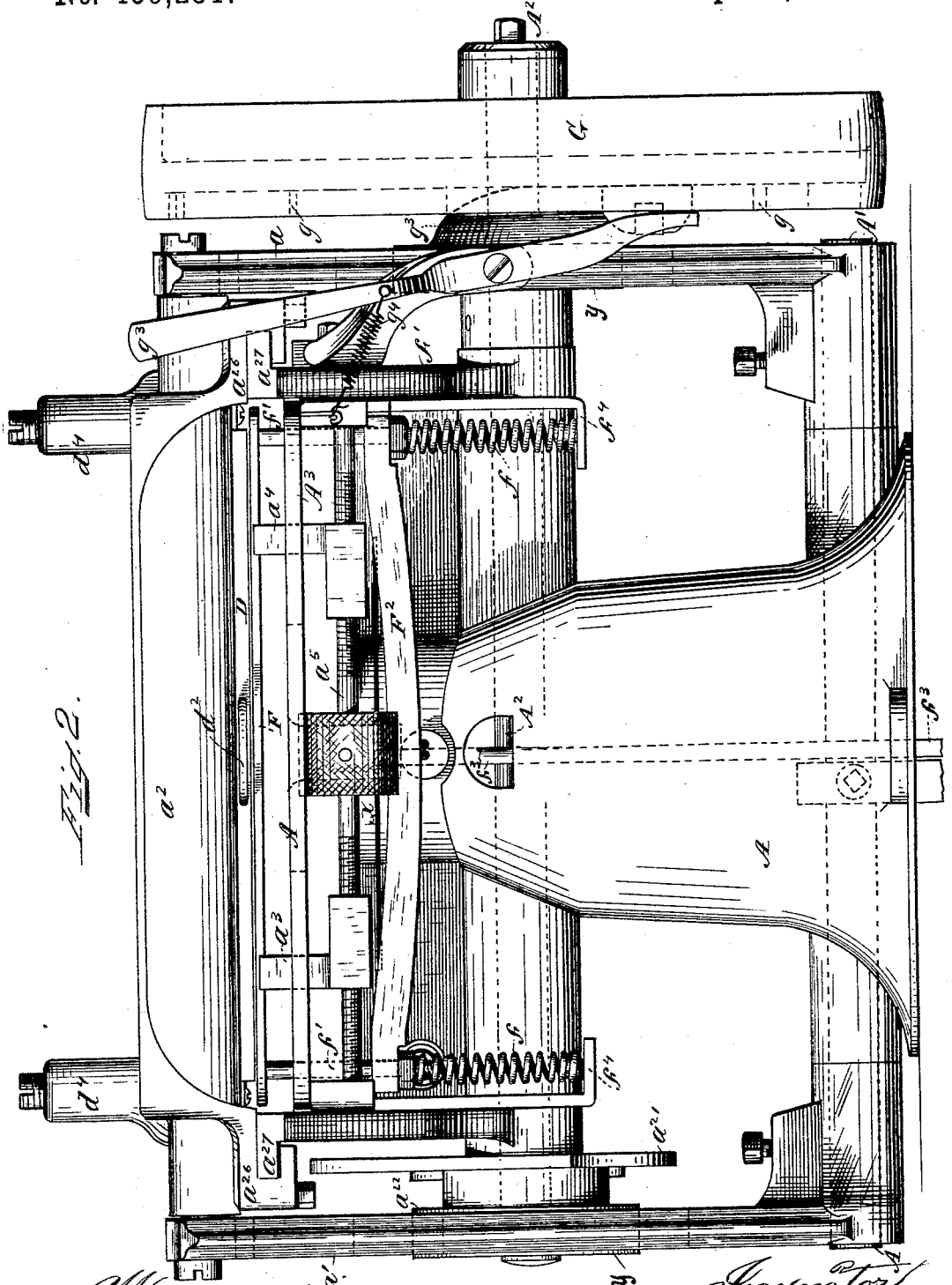

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(No Model.) 6 Sheets—Sheet 3.

C. S. FIFIELD.

SKIVING MACHINE.

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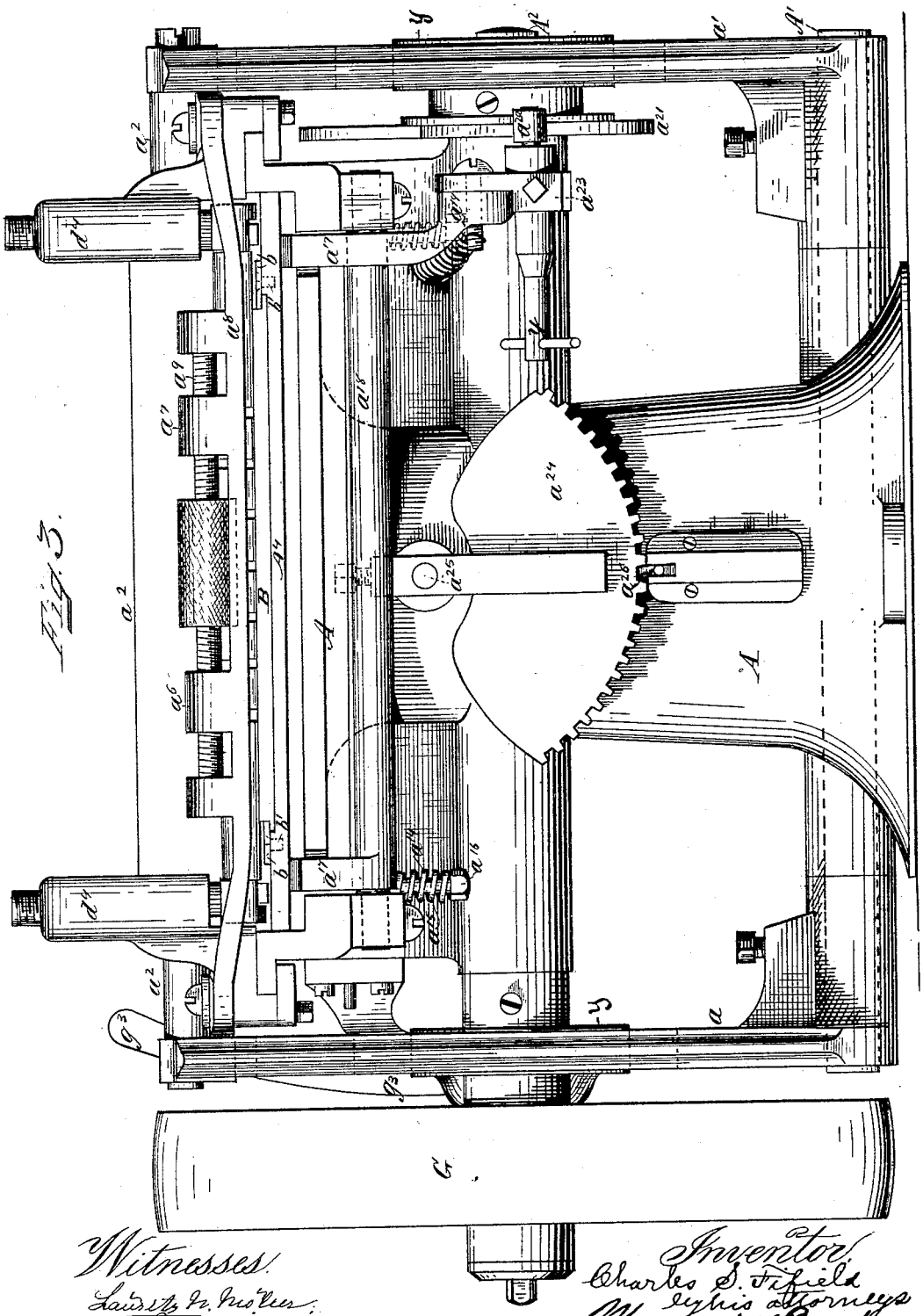

Fig. 3.

Witnesses.
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C. S. FIFIELD.

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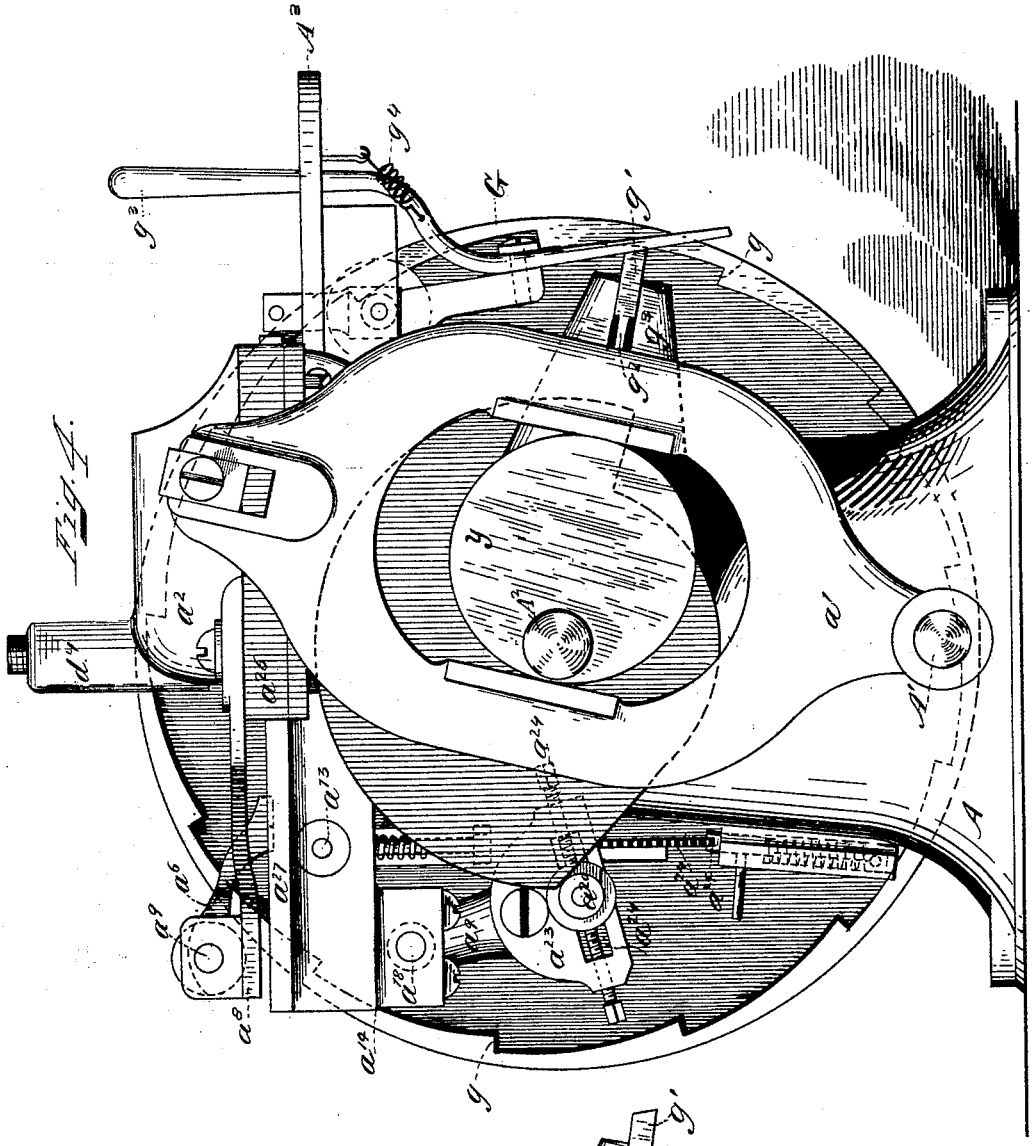

Fig. 4.

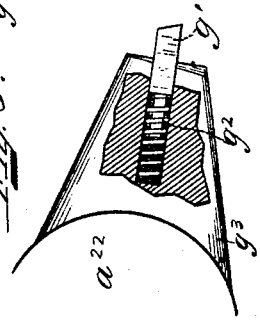

Fig. 6.

Witnesses.
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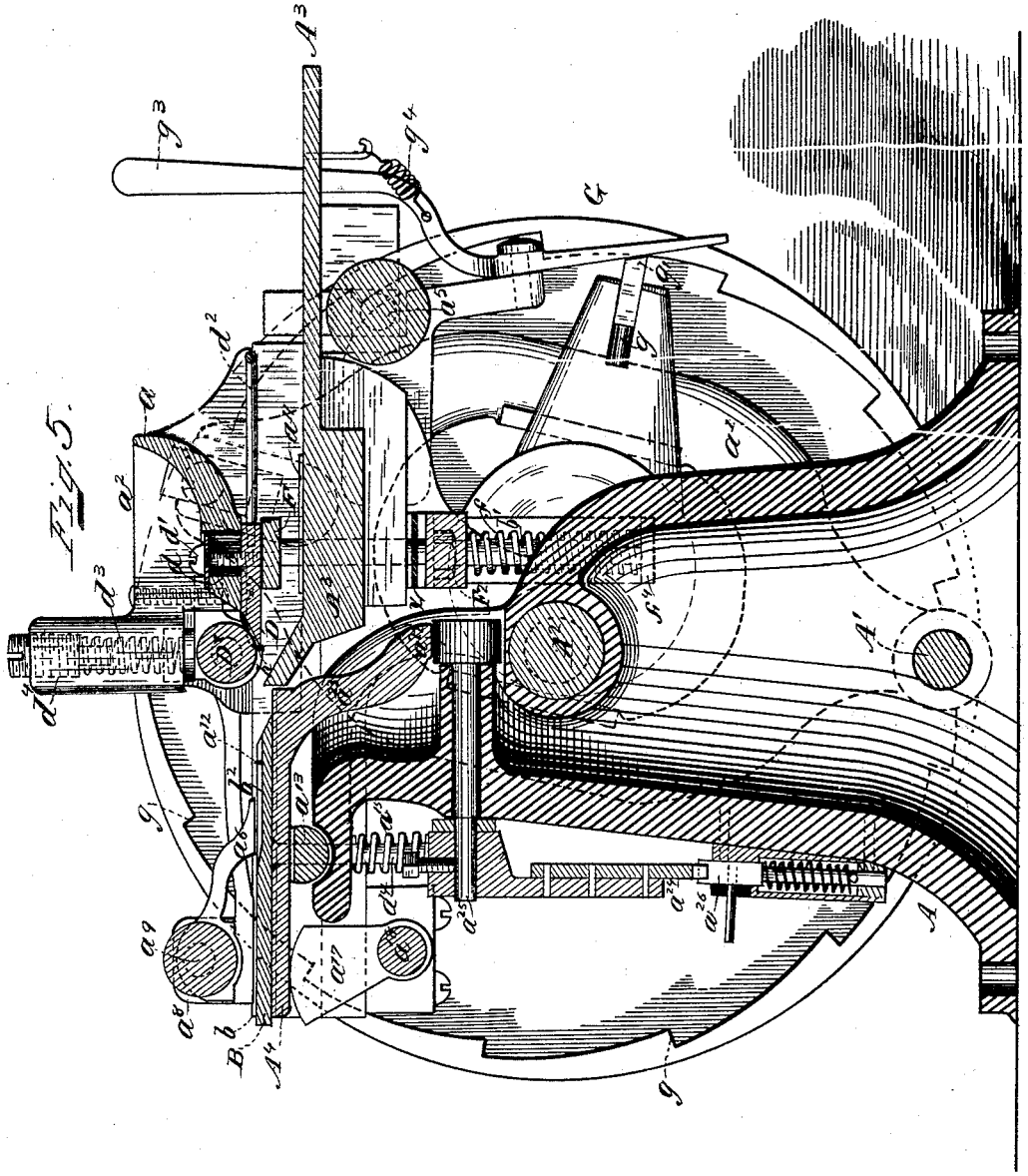
C. S. FIFIELD.

SKIVING MACHINE.

No. 459,231. Patented Sept. 8, 1891.

Fig. 5.



Witnesses:
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(No Model.) 6 Sheets—Sheet 6.

C. S. FIFIELD.

SKIVING MACHINE.

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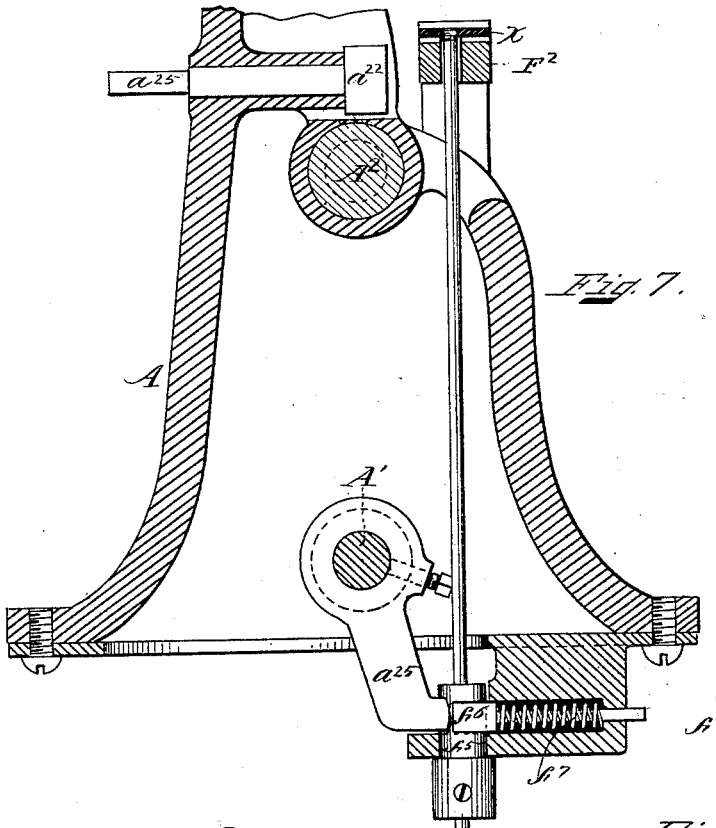


Fig. 7.

Fig. 8.

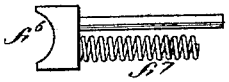


Fig. 9.

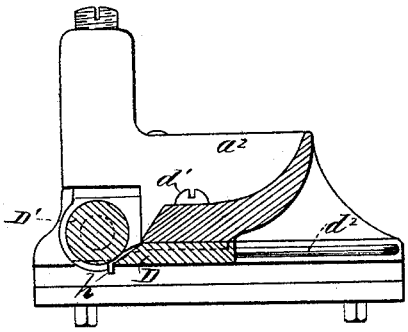
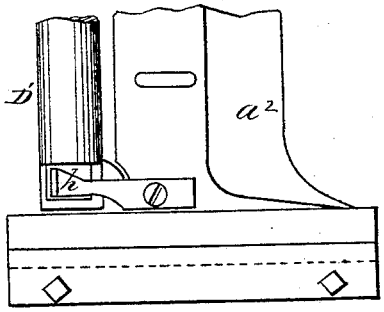


Fig. 10.



Witnesses.
Louis L. Hollar.
John R. Snow.

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UNITED STATES PATENT OFFICE.

CHARLES S. FIFIELD, OF REVERE, MASSACHUSETTS.

SKIVING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 459,231, dated September 8, 1891.

Application filed August 4, 1890. Serial No. 360,950. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. FIFIELD, of Revere, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Skiving-Machines, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan; Fig. 2, a front elevation; Fig. 3, a rear elevation; Fig. 4, an elevation; and Fig. 5, a sectional elevation on line 5 5 of Fig. 1, looking to the right. Fig. 6 shows a part of the clutch for the driving-pulley. Fig. 7 is a sectional view illustrating one form of contrivance for locking the work-clamp in the stock. Fig. 8 is a detail of part of the lock. Fig. 9 is a sectional view on line 9 9 of Fig. 7, showing stops for the knife. Fig. 10 is a fragmentary view, also showing the stops for the knife.

My invention relates to machines for skiving uppers; and it consists, mainly, in the combination of a reciprocating knife with a work-support and adjusting mechanism for the work-support, as more particularly set forth below.

Various other features of my invention will be pointed out hereinafter.

In the drawings, which show the preferred of several contemplated forms of machine embodying my invention, A is the frame, A′ a rocker-shaft, A^2 the main shaft, A^3 the work-table, A^4 one form of bed-support, and B the removable bed. Shafts A′ A^2 are journaled in frame A, which supports work-table A^3. That form of bed-support A^4 shown in the drawings is a flat piece of metal having a downward projection at its inner edge, as shown in Fig. 5 and hereinafter explained. Rocker-shaft A′ is provided with arms a a', connected by the knife-carrier a^2, which extends across the machine above the work-table and bed and moves to and fro over the work-table and bed from the front of machine toward the rear, and vice versa, the arms a a' being at the sides of the machine. (See Fig. 2.) Table A^3 is provided with guides a^3 a^4 for the rear portion of the upper, and these guides are conveniently adjusted by a right and left screw a^5, which connects them, the guides being studs which project through slots in the table above that surface of the table upon which the work is laid. The screw a^5 is mounted in brackets on the other side of the table and passes through lower portions of the studs or guides a^3 a^4, which have threaded holes to receive the screw. Guides a^6 for the toe portion of the upper project over bed B and are also conveniently adjusted by a right and left screw a^7, these guides and their adjusting-screw being conveniently mounted in a bracket a^8, mounted on frame A. The guides a^6 have at their outer ends threaded holes, through which passes the screw a^7, the guides sliding, when the screw is turned, upon the opposed surface of a part of bracket a^8, which extends from across the machine from side to side. This bracket is best made adjustable, so that the inner ends of the guides a^6 may be readily moved toward or away from the operator. For this reason the ends of the bracket are formed with slots a^9, through which pass screws a^{10}, holding it in place. This construction is a feature of my invention.

In order to crease the upper and prick for the toe-caps while the stock is in the machine for skiving, thus combining the functions of several machines in one machine, I mount a creaser a'' on table A^3, that is preferably a piece of thin metal projecting slightly above that surface of the table upon which the upper is placed, and toe-cap pricks a^{12} on bed B, and as the knife moves toward the rear of the machine the stock is pressed against the creaser and pricks for the toe-caps. The toe-cap pricks a^{12} are conveniently formed of sharp pins set in the upper surface of bed B.

F is a work-clamp moving toward and away from table A^3 and supported by springs f, in this case surrounding its posts b' through cross-piece F^2, to which the treadle-rod f^3 is secured. The clamp F is a bar which extends over table A^3 from side to side thereof. The cross-piece F^2 is on the other side of table A^3, and the posts or pins f'', secured to clamp F, pass through holes in table A^3 and through holes in cross-piece F^2, to which they are secured in this case by nuts, between which and bracket f^4, mounted on frame A, the springs f are secured. (See Fig. 5.) The treadle-rod f^3, being secured to cross-piece F^2, serves, when depressed, to move the clamp F toward the opposed surface of the table A^3 against the force of springs f, which, when pressure

is taken from the treadle-rod, return the clamp F to its higher position. (Shown in Fig. 5. See also Fig. 2.) The bed-support A^4 has a tilting motion, for a purpose hereinafter explained, and is best mounted on a rocker-shaft a^{13}, journaled in frame A, (see Figs. 4 and 5,) posts a^{14} passing through the frame A and being provided with springs a^{15} between frame A and nuts a^{16} on posts a^{14}. The rear of the bed-carrier is raised by cams a^{17} on rocker-shaft a^{18}, journaled in frame A and provided with an arm a^{19}, having a roll a^{20}, which works with cam a^{21} on main shaft A^2. The front of the bed-carrier is raised or lowered, if desired, by a cam a^{22}, mounted in frame A (see Fig. 2) and working with a projection a^{23} on table-support A^4. This cam is kept in any desired position by a suitable locking device, preferably a graduated locking device, made up of a toothed segment a^{24} on the spindle a^{25} of cam a^{22} and a spring-controlled tooth a^{26}. Spindle a^{25} is journaled in frame A, and the cam a^{22} on said spindle is directly under the projection a^{23} from the inner side of the table-support A^4, so as to engage with that projection and keep the inner edge of the table-support A^4 at the desired elevation. The spring-controlled tooth a^{26} is conveniently supported by frame A and is pressed by its spring against the toothed edge of the segment a^{24}. The tooth a^{26} is moved away from the segment to allow the cam a^{22} to be turned. By moving the toothed segment the cam a^{22} is turned and the front of the bed-support adjusted in any desired relation to the knife. The cam being locked in a desired position the machine is ready for a given grade of material, provision being made, as hereinafter described, for variations in the grade.

The other parts of the machine will be best understood from a description of its operation, which is as follows: The front of the bed B being adjusted for the given grade of stock to be skived, as already explained, and the knife-carrier being in its forward position, as shown in Fig. 1, the upper is placed on the table A^3, under the knife and over the bed, being kept in the desired position by adjustment of the guides a^3 a^4 a^6, according to the size of upper to be skived. The clamp F is then moved against the upper by depressing the treadle-rod, which it is desirable to lock in its lower position. The form of lock shown is an excellent one for the purpose, and is made up of a projection f^5 on the treadle-rod and a spring-slide f^6. As the treadle-rod is moved down, the projection is carried out of the path of the slide, which is moved over the projection f^5 by its spring f^7, so that the clamp is locked against the work. The main shaft A^2 is now set in motion and the cams y thereon engage the rocker-arms a a' (which are preferably formed with openings to receive the cams y, as shown in Fig. 4) and cause them to move toward the rear of the machine, thus carrying the knife over the upper and into engagement with it from near the front edge of the bed toward the rear thereof. The rear edge of the bed is in a raised position during the skiving movement of the knife, and its position may be adjusted for the production of skived margins of any desired thinness. The bed is best raised and lowered by cams a^{17}, the motion or range of motion of which is conveniently varied by adjustment of roll a^{20} in bracket a^{23} on arm a^{19} of rocker-shaft a^{18}, the roll a^{20} being mounted in a slot a^{24} in bracket a^{23} and held therein by screws a^{24}. The cams a^{17} are so timed that when the cut is completed the bed drops away from the knife, and at this time the dog a^{25} on the rocker-shaft A′ strikes the spring-controlled slide f^6 and pushes it back against the force of spring f^7 out of the path of the projection f^5 on the treadle-rod, so that the clamp F is unlocked and moved away from the work by its spring f. The work is now readily removed, and it is at this time in the form of machine shown that the knife moves back to its normal position. The knife D is preferably adjustably connected to its carrier a^2, and one convenient way of making this connection is to form carrier a^2 with transverse slots d, through which screws d' pass to clamp the knife to the carrier. A handle or extension d^2 on the knife is convenient for adjusting or removing the knife.

It is desirable to provide the knife-carrier with a roll D′ near the edge of the knife, so as to hold down the leather ahead of the knife as the knife moves forward. The roll is best backed up by springs d^3 in chamber d^4, formed in frame. The bed B is preferably secured in its support by clamps b, mounted on the bed-support A^4. By loosening the screws b' which secure the clamps in place the bed is easily removed and another replaced. The bed is formed with a depression b^2, the configuration of which depends upon the style and size of the boot or shoe uppers for which are to be herein skived at the margins.

I usually provide each machine with a variety of beds having depressions b^2 of varying configuration, and prefer to make the bed B of some soft metal, such as type metal, so that the depression b^2 may be easily formed or varied in its configuration, according to the nature of the work. In many cases users will desire plain beds, and will work out the depressions b^2 according to their own needs.

It is highly desirable to provide the knife-carrier with stops h, by which the knife is arrested at the proper place when put into the machine, and knife-carrier a^2 is best formed with lips a^{26}, which engage flanges a^{27}, Fig. 4, forming tracks for carrier a^2 on frame.

The form of my machine shown is formed with one of numerous clutch arrangements. In this case the flange of driving-wheel G is provided with a series of teeth g, with which a slide g', backed up by a spring g^2, Fig. 6, engages. A hand-lever g^3, backed up by a

spring g^4, is provided for conveniently clutching and unclutching the pulley G and shaft A^2, the slide g' and spring g^2 being mounted in a projection g^3 from a cam y.

The spring X, interposed between cross-piece F^2 and table A^3, is a convenient means of providing for the variations in thickness of stock referred to.

What I claim is—

1. In a skiving-machine, the combination of a work-table, a bed, and a knife with means substantially such as described—that is, cams a^{17}, rocker-shaft a^{18}, and connected parts—for lifting the rear edge of the bed, all combined and operating substantially as and for the purpose set forth.

2. In a skiving-machine, the combination of a bed and a knife with means for adjusting one of the edges of the bed in any desired position, and means substantially such as described—that is, cams a^{17}, rocker-shaft a^{18}, and connected parts—for lifting its opposite edge, all combined and operating substantially as and for the purpose set forth.

3. In a skiving-machine, the combination of rocking bed B with a cam a^{22}, toothed segment a^{24}, connected to the cam, and a catch a^{26} to engage the segment and hold the cam in its adjusted position, the cam engaging the bed A^4 to tilt it, substantially as and for the purpose set forth.

4. In a skiving-machine, a knife-carrier a^2, in combination with rocker-arms a', rocker-shaft A', and cams y, substantially as and for the purpose set forth.

5. In a skiving-machine, the combination of a table and a work-clamp with rod f^3, projection f^5 thereon, spring-controlled slide f^6, mounted on the frame of the machine, dog a^{25}, and shaft A', the dog being carried by the shaft and pushing the slide f^6 out of engagement with projection f^5 on rod f^3, which is secured to the clamp, substantially as and for the purpose set forth.

6. In a skiving-machine, the combination of table A^3, work-clamp F, cross-piece F^2, and spring X, the work-clamp and cross-piece being connected together and the spring being interposed between the table and cross-piece, substantially as shown, and for the purpose set forth.

7. In a skiving-machine, an automatically-tilting bed, combined with means for securing one of its edges in an adjusted position, said means being provided with a graduated plate a^{24} and locking device a^{26}, substantially as and for the purpose set forth.

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JOHN R. SNOW.