

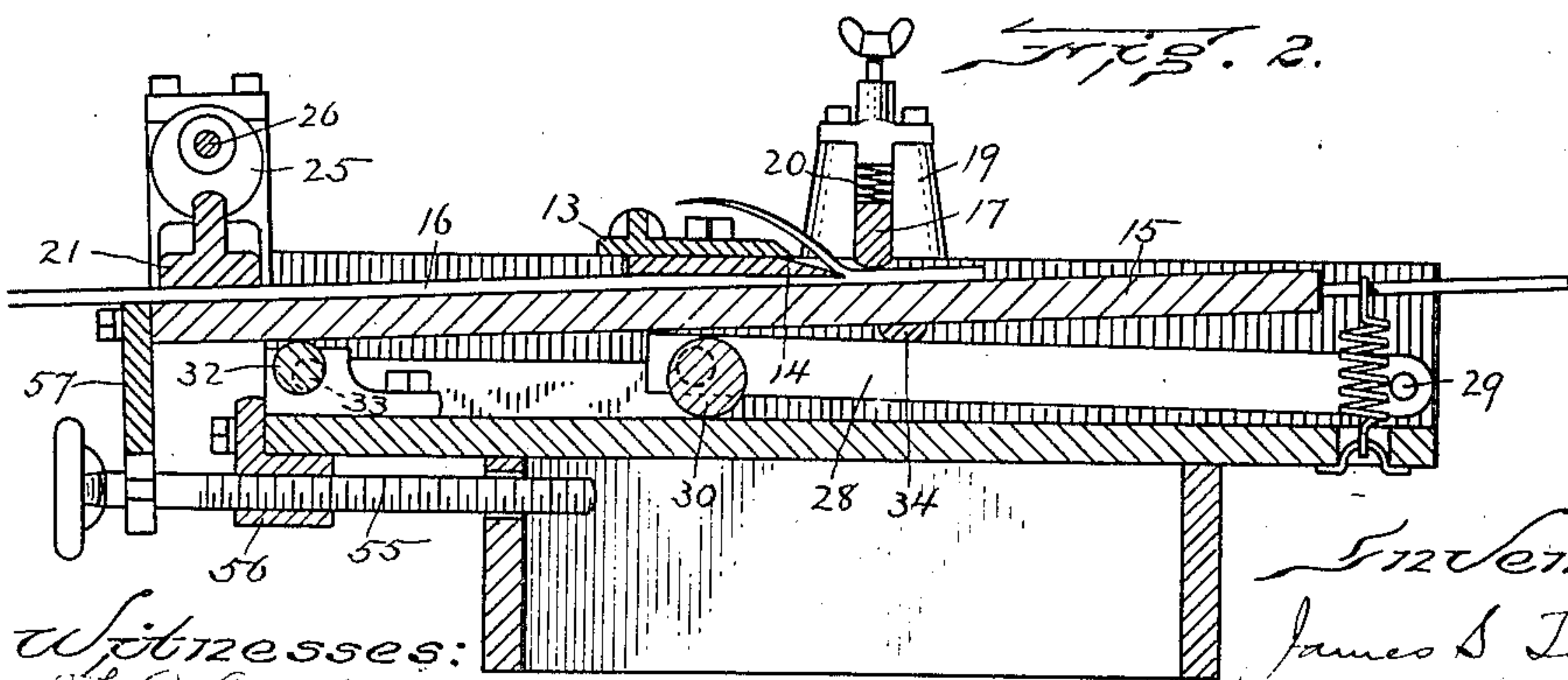
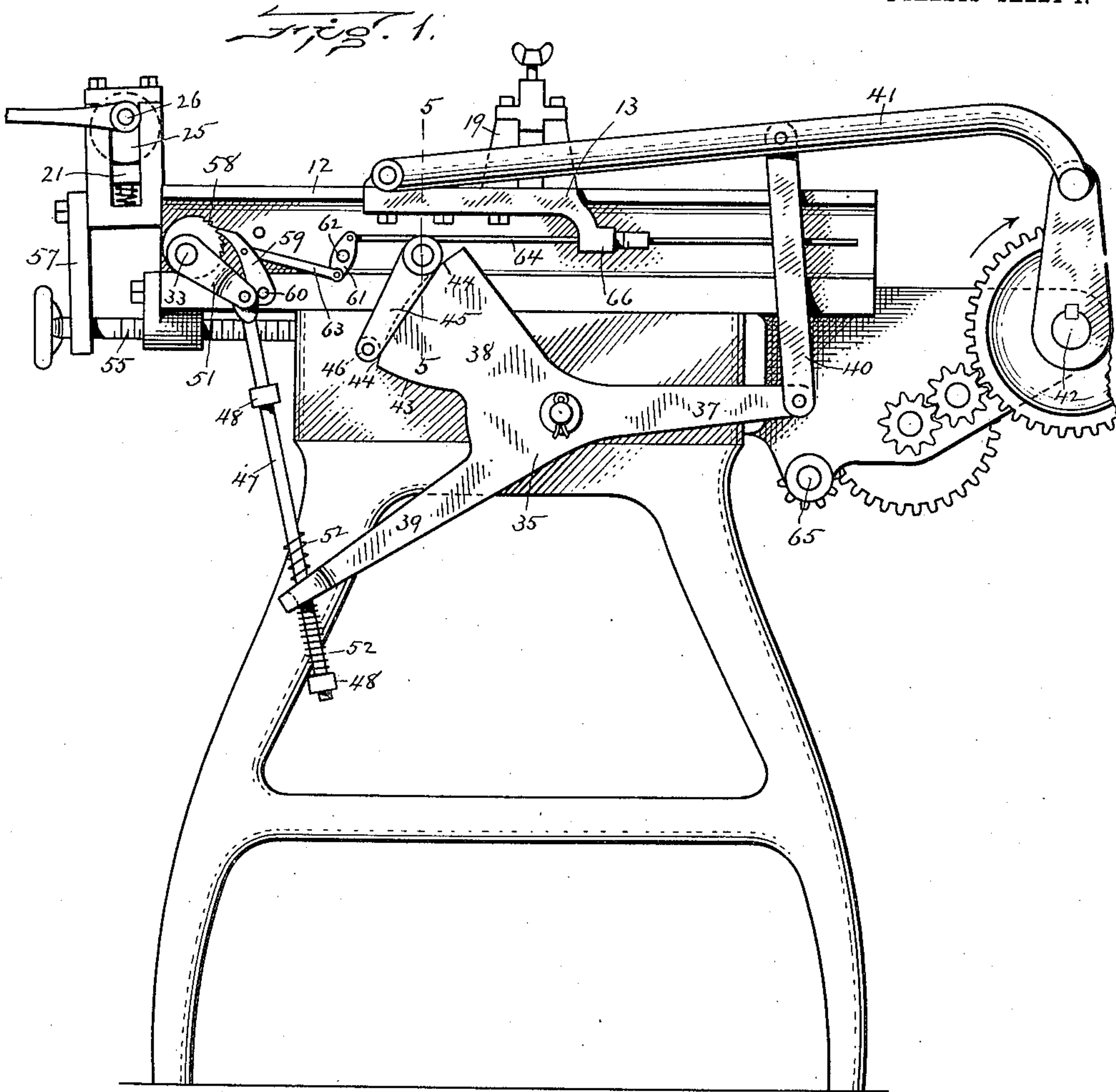
J. S. TURNER.  
SKIVING MACHINE.

APPLICATION FILED AUG. 22, 1908.

922,214.

Patented May 18, 1909.

2 SHEETS—SHEET 1.



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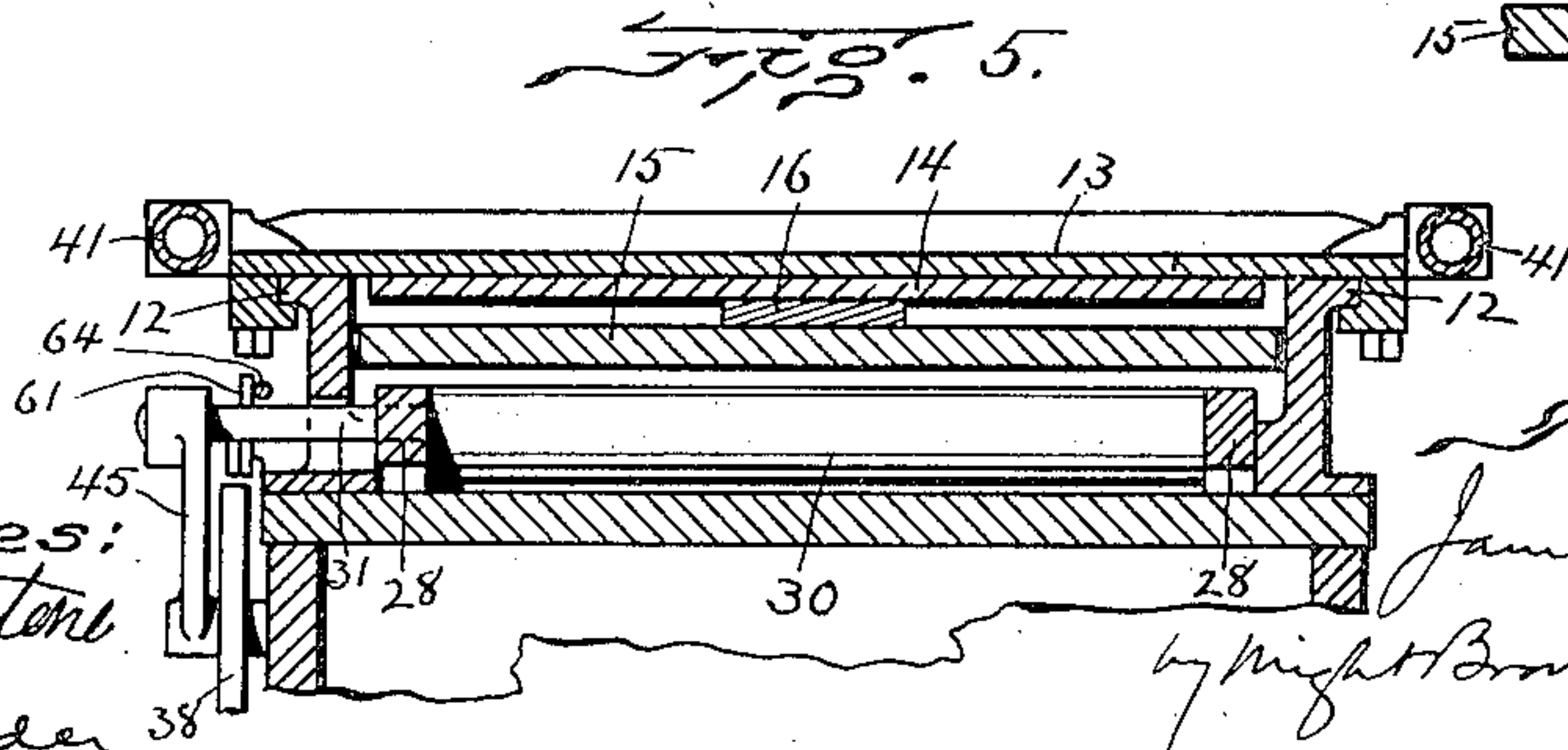
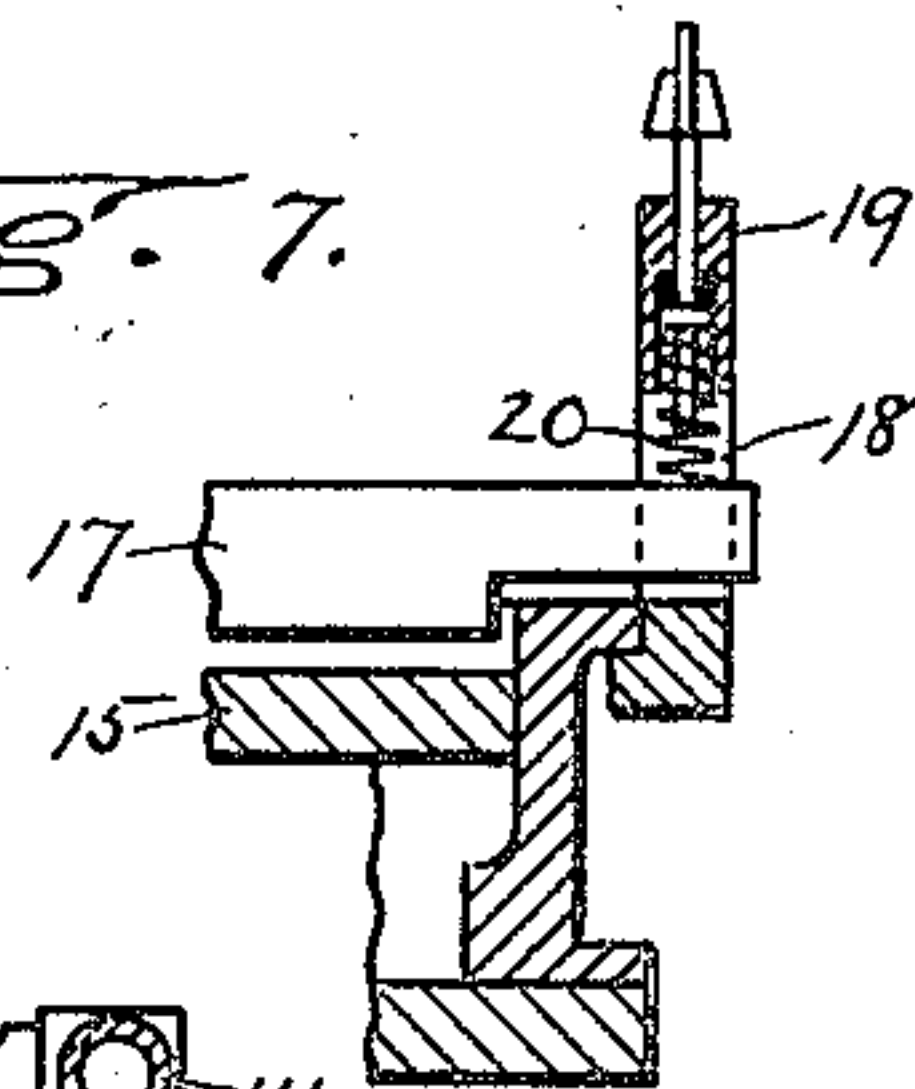
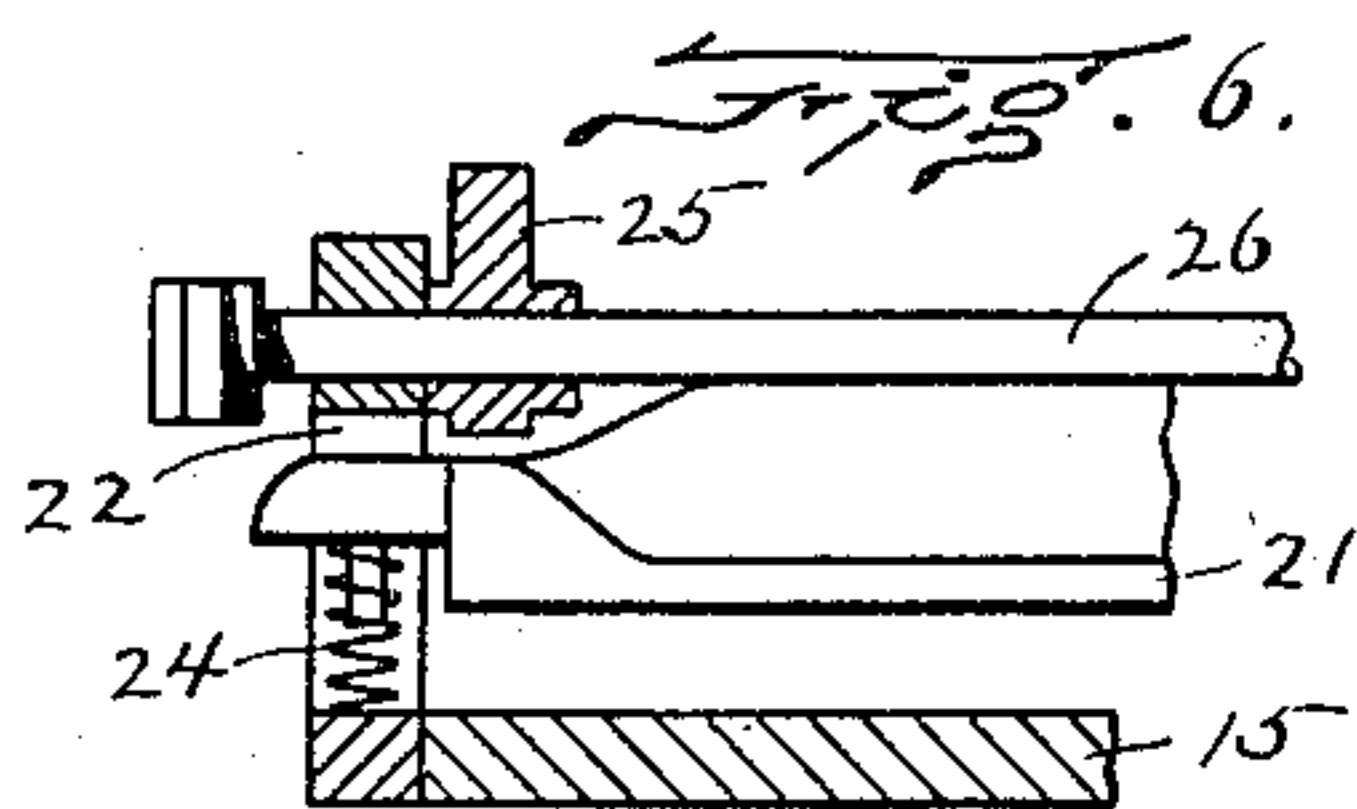
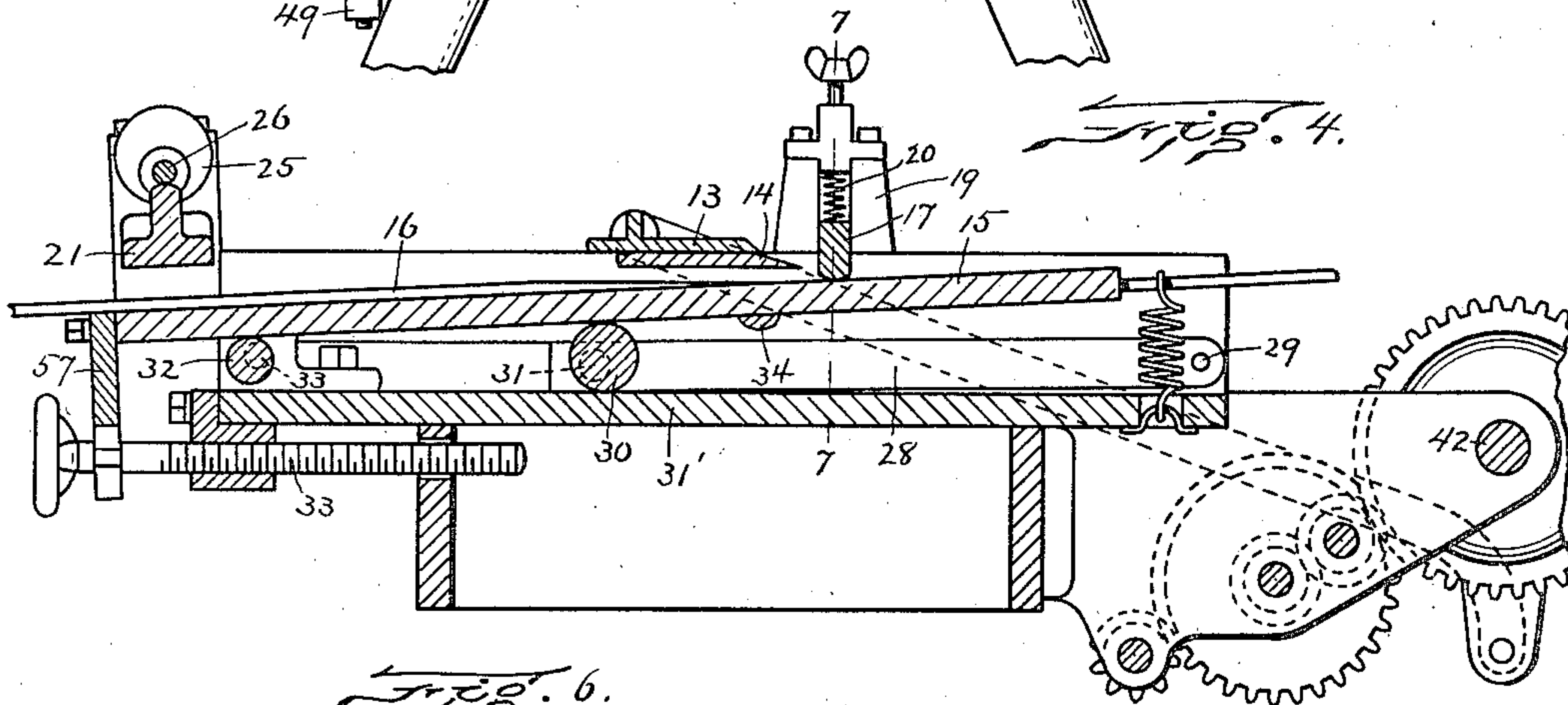
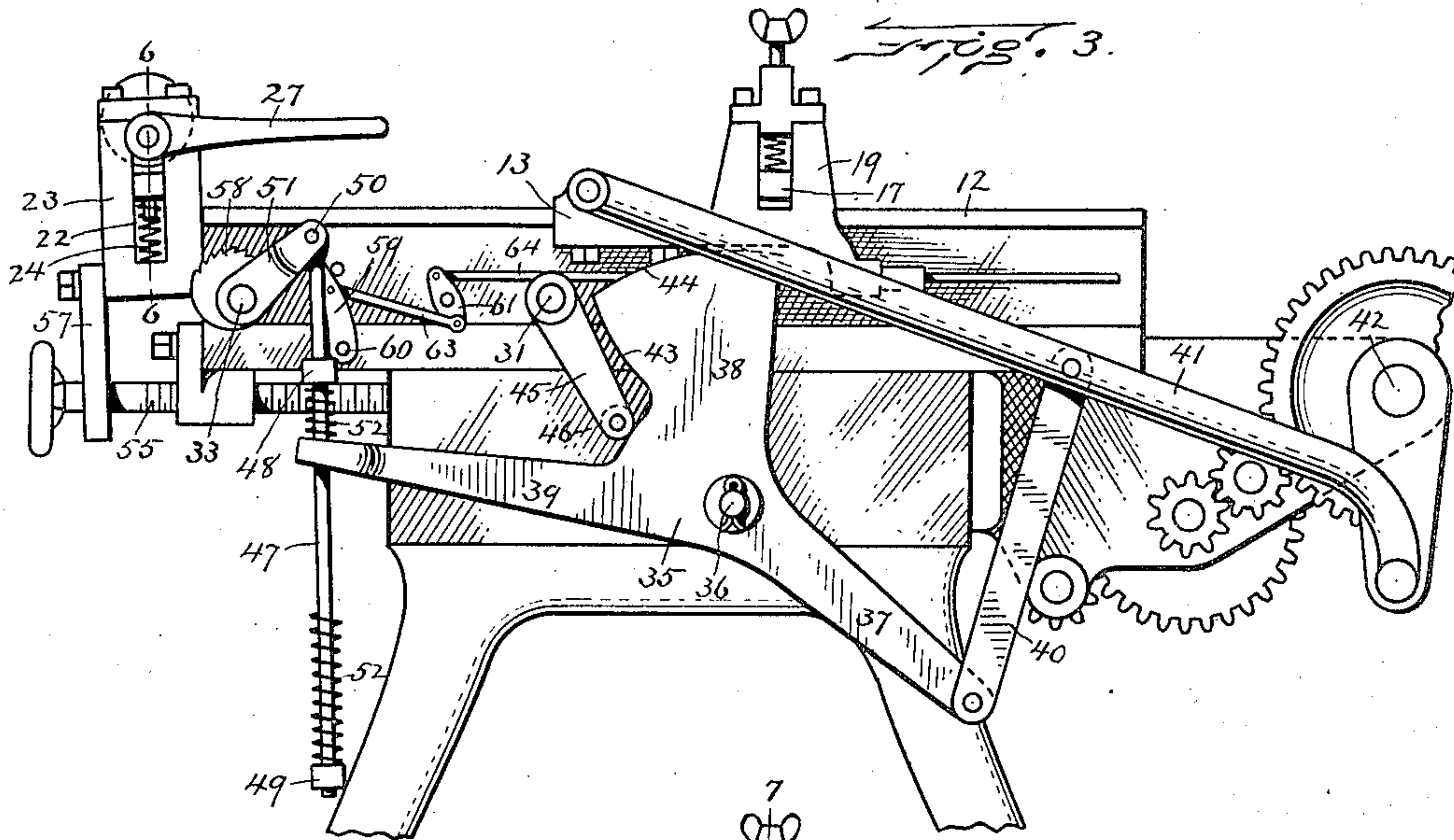
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

JAMES S. TURNER, OF LOWELL, MASSACHUSETTS.

## SKIVING-MACHINE.

No. 922,214.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed August 22, 1908. Serial No. 449,817.

*To all whom it may concern:*

Be it known that I, JAMES S. TURNER, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Skiving-Machines, of which the following is a specification.

This invention relates to machines for skiving the ends of strips of leather used for machine belting and other purposes, the skived ends being adapted to be brought together to form a lap joint, the thickness of which does not exceed the average thickness of the strip.

The invention has for its object to provide a machine adapted to scarf or skive a piece of leather quickly and accurately, without requiring the services of a skilled operator.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings forming a part of this specification,—Figure 1 represents a side elevation of a skiving machine embodying my invention. Fig. 2 represents a longitudinal section of the same, the parts being in the position shown in Fig. 1. Fig. 3 represents a side elevation, showing the machine at a different stage of the operation. Fig. 4 represents a longitudinal section, showing the machine in the condition represented in Fig. 3. Fig. 5 represents a section on the line 5—5 of Fig. 1. Fig. 6 represents a section on the line 6—6 of Fig. 3. Fig. 7 represents a section on the line 7—7 of Fig. 4.

The same reference characters indicate the same parts in all the figures.

The supporting frame of the machine is provided with horizontal guides 12 on which a carrier 13 is mounted to reciprocate in a horizontal path.

14 represents a skiving knife affixed to the carrier 13.

15 represents a work-supporting bed which is supported in an inclined position relatively to the path of the knife and is adapted to support a piece of work such as a strip 16 of belting leather, and hold said strip in an inclined position in the path of the knife, so that the knife in moving forward will skive off one end of the strip, as illustrated in Fig. 2. The carrier is provided with a presser-foot 17 which is adapted to bear with yielding pressure upon the forward end of the strip 16 in close

proximity to the edge of the knife 14. The presser-foot is preferably a bar extending across the bed 15, the ends of the bar projecting into slots 18 in standards 19 formed on or affixed to the carrier 13. Springs 20, located in said slots, exert a downward pressure on said presser-foot and hold it yieldingly on the work on the bed 15.

21 represents a clamping bar which extends across the bed 15 at a point behind the knife and is adapted to hold the strip 16 firmly against the bed, the ends of said bar projecting into slots 22 in standards 23 affixed to the frame of the machine. The clamping bar 21 is normally raised from the bed by springs 24 and may be depressed by eccentrics 25 affixed to a rock-shaft 26, which is journaled in bearings in the standard 23, and is provided with an operating lever 27.

The work-supporting bed 15 is adapted to be moved sidewise toward and from the knife, mechanism being provided for automatically raising or moving the bed toward the knife prior to the skiving operation, and thus pressing the upper side of the strip closely against the under side of the knife to insure the uniform action of the cutting edge entirely across the strip, so that the skived portion will have a clearly defined end extending across the strip at right angles to the length of the latter, the bed being rigidly supported in its raised position. The said mechanism is organized to move the bed downwardly away from the knife at the end of the skiving operation, thus permitting the removal of the skived strip and the insertion of another strip. The bed 15 rests upon what I may term an "adjustable base," which is adapted to rigidly support the bed in an inclined position relatively to the path of the knife, and to raise and lower the bed for the purposes above stated. The said base, in this embodiment of the invention, includes two swinging bars 28 pivoted at 29 to the frame of the machine, an outer supporting member 30 having eccentric trunnions 31 at its ends which are journaled in sockets in the swinging ends of the bars 28, and an inner supporting member 32 having eccentric trunnions 33 at its ends which are journaled in fixed bearings in the frame of the machine. The supporting members 30 and 32 extend across the bed 15 below the same, and are of cylindrical form. The outer member 30 is supported by a fixed



part 31 of the frame. Owing to the eccentric arrangement of said member relatively to its trunnions 31, a partial rotation of the member will cause it to either raise or depress the swinging ends of the bars 28. The inner member 32, being journaled in fixed bearings and also eccentrically arranged relatively to its trunnions, is raised or depressed by a partial rotation. When the members 30 and 32 are adjusted as shown in Fig. 2, the swinging ends of the bars 28 are raised, so that a foot 34 on the under side of the bed 15 bears upon said bars, as shown in Fig. 2. Another part of the bed 15 at the same time bears upon the inner member 32, the bed being thus rigidly supported in its raised position. When the members 30 and 32 are turned to the position shown in Fig. 4, the bars 28 and the member 32 are depressed and support the bed 15 in its lowest position. Means are provided for turning the members 30 and 32 from each of the described positions to the other, said means being next described.

35 represents a lever which is fulcrumed at 36 on the frame of the machine, and has three arms 37, 38 and 39. The arm 37 is connected by a link 40 with a pitman 41 which communicates motion from a crank-shaft 42 to the knife carrier 13, the movements of the pitman 41 causing an oscillation of the lever 35, as indicated in Figs. 1 and 3. The arm 38 is provided with a cam-shaped face 43 and with a face 44 which is concentric to the fulcrum 36.

45 represents an arm which is affixed to one of the trunnions 31 of the outer member 30, and is provided at its outer end with a trundle roll 46 which is arranged to bear on the faces 43 and 44 of the arm 38. The arm 39 has a forked outer end through which passes a rod 47 having collars 48 and 49, and pivoted at 50 to an arm 51 which is affixed to one of the trunnions 33 of the inner member 32. Buffer springs 52 are interposed between the arm 39 and the collars 48 and 49. When the lever 35 is in the position shown in Fig. 1, the trundle roll 46 bears on the concentric face 44, the outer member 30 being thus held or locked in the position shown in Fig. 2. When the lever 35 is moved to withdraw the concentric face 44 from contact with the trundle roll 46, as shown in Fig. 3, the weight of the bed 15 and the bars 28 causes the member 30 to turn from the position shown in Fig. 2 to that shown in Fig. 4, the arm 39 at the same time acting through one of the springs 52, and the rod 47 to turn the inner member 32 from the position shown in Fig. 2 to that shown in Fig. 4. The arm 45 is now in position to be engaged by the cam-face 43 during the return movement of the lever 35 from the position shown in Fig. 3 to that shown in Fig. 1, said cam-face acting on the trundle roll 46 and mov-

ing the arm 45 in the direction required to turn the outer member 30 to the position shown in Fig. 2, the arm 39 at the same time acting through the other spring 52 and the rod 47 in such manner as to turn the inner member 32 from the position shown in Fig. 4 to that shown in Fig. 2.

The described mechanism is so timed that the bed 15 is raised and caused to press the strip 16 against the under side of the knife just before the forward movement of the carriage, the bed being depressed after the knife has completed its forward movement. The position of the bed 15, when it is raised, is such that the knife, in making its forward movement, passes entirely through the strip 16 and reduces the same to a thin edge at its forward end.

The angle of inclination of the bed 15 may be varied by moving the bed endwise when the bars 28 are supported in their raised position, as shown in Fig. 2, the bars being then inclined so that an endwise movement of the bed in one direction will cause the foot 34 to move upwardly, while an endwise movement of the bed in the opposite direction will cause the foot 34 to move downwardly.

55 represents an adjusting screw which is engaged with a threaded orifice in a fixed ear 56, the said screw being engaged with an arm 57 attached to one end of the bed 15. The rotation of the screw 55 causes an endwise adjustment of the bed.

To prevent the inner member 32 from being displaced from its raised position by the weight of the bed, I provide means for locking said member, said means including a ratchet 58 affixed to one of the trunnions 33, and a pawl 59 pivoted at 60 to the frame of the machine and adapted to engage the ratchet. A short lever 61, pivoted at 62 to the frame of the machine, is connected at one end to the pawl by a rod 63 and at the other end with the carrier 13 by a rod 64, the last-named rod having a frictional engagement with the carrier, so that, when resistance is offered to the movement of the rod 64, the carrier may move independently of said rod. The arrangement of the described parts is such that when the inner member 32 is moved to its raised position, the pawl 59 drops into engagement with the ratchet 58 and locks the member 32. Just before the member 32 is to be turned to its depressed position, the pawl 59 is withdrawn from engagement from the ratchet 58 as indicated in Fig. 3.

The crank shaft 42 may be driven by power applied in any suitable way. I have here shown a driving shaft 65 and a train of gearing connecting said shaft with the crank shaft 42.

The rod 47 with its collars 48 and springs 52 constitutes a yielding connection between



the lever 35 and the arm 51, the yielding nature of this connection enabling the elevation of the inner member 32, caused by the upward movement of the rod 47 and arm 51, to cease when the strip 16 comes in contact with the knife 14, the elevation of the inner member being less when the strip is relatively thick than when it is relatively thin. Provision is therefore made for pressing a strip of any thickness against the knife, the elevation of the member 32 and of the portion of the bed 15 resting upon it being determined by the thickness of the strip. The yielding connection between the carrier 13 and the rod 64 effected by means of a sleeve 66 attached to the carrier and having a frictional engagement with the rod, enables the pawl 59 to engage the ratchet 58 in any position to which the latter may be turned so that the member 32 is locked at any height to which it may be raised.

I claim:

1. A skiving machine comprising a reciprocating skiving knife, a work-supporting bed which is inclined relatively to the path of the knife and is movable bodily toward and from said path, and automatic mechanism for moving the bed, said mechanism having provisions for moving the bed toward the knife before the cutting movement thereof, rigidly supporting the bed during said cutting movement, and moving the bed away from the knife after said cutting movement.

2. A skiving machine comprising a reciprocating skiving knife, an adjustable supporting base located below the path of the knife, a work-supporting bed mounted on said base, the latter being arranged to hold the bed at an inclination relatively to the path of the knife, and automatic mechanism for adjusting the base to move the bed toward and from the knife.

3. A skiving machine comprising a movable skiving knife, an adjustable supporting base located below the path of the knife, a work-supporting bed held by said base at an inclination relatively to the path of the knife, mechanism for reciprocating the knife, and connections between said mechanism and the supporting base whereby the latter is automatically adjusted to move the bed toward and from the knife.

4. A skiving machine comprising a reciprocating skiving knife, an adjustable supporting base located below the path of the knife, a work-supporting bed slidingly mounted on said base and held thereby at an inclination to the path of the knife, and means for adjusting the bed endwise, the said base having provisions for causing a variation in the inclination of the bed when the latter is moved endwise.

5. A skiving machine comprising a reciprocating skiving knife, an adjustable sup-

porting base including a pair of pivoted bars, inner and outer transverse supporting members, one eccentrically journaled in the swinging ends of said bars, and the other eccentrically journaled in fixed bearings, and a fixed support for the outer member, an inclined work-supporting bed bearing on said bars and on the inner supporting member, and means for turning said supporting members to raise and lower the bed.

6. A skiving machine comprising a reciprocating skiving knife, an adjustable supporting base including a pair of pivoted bars, inner and outer transverse supporting members, one eccentrically journaled in the swinging ends of said bars, and the other eccentrically journaled in fixed bearings, and a fixed support for the outer member, an inclined work-supporting bed bearing on said bars and on the inner supporting member, arms affixed to the supporting members, a base adjusting lever having a cam face and a concentric face adapted to alternately engage the arm on the outer member, a rod yieldingly engaged with said lever and pivoted to the arm on the inner member and means for oscillating the adjusting lever.

7. A skiving machine comprising a reciprocating skiving knife, an adjustable supporting base including a pair of pivoted bars, inner and outer transverse supporting members, one eccentrically journaled in the swinging ends of said bars, and the other eccentrically journaled in fixed bearings, and a fixed support for the outer member, an inclined work-supporting bed bearing on said bars and on the inner supporting member, the concentric face of the adjusting lever being adapted to lock the outer member when the bed is raised, and means for locking the inner member when the bed is raised.

8. A skiving machine comprising a reciprocating carrier having a skiving knife, an adjustable supporting base including inner and outer eccentrically mounted supporting members, a work-supporting bed resting in an inclined position on said base, means for turning said members to raise and lower the bed, a ratchet affixed to the inner member, a pawl adapted to engage said ratchet and lock the inner member and connections between said pawl and the carrier whereby the pawl is moved to and from its operative position.

9. A skiving machine comprising a reciprocating skiving knife, an adjustable supporting base including a supporting member eccentrically journaled in fixed bearings and adapted to be elevated and depressed by a partial rotation, a bed supported in an inclined position by said base and resting on the supporting member, and means for yieldingly elevating said supporting member, so that the elevation of the supporting



member and bed is determined by the thickness of the work.

10. A skiving machine comprising a reciprocatory skiving knife, an adjustable supporting base including a supporting member 5 eccentrically journaled in fixed bearings and adapted to be elevated and depressed by a partial rotation, a bed supported in an inclined position by said base and resting on 10 the supporting member, means for yieldingly elevating said supporting member, so

that the elevation of the supporting member and bed is determined by the thickness of the work, and means for locking the supporting member in any position to which it 15 may be elevated.

In testimony whereof I have affixed my signature, in presence of two witnesses.

JAMES S. TURNER.

Witnesses:

C. F. BROWN,

E. BATCHELDER.