

**Sept. 4, 1928..**

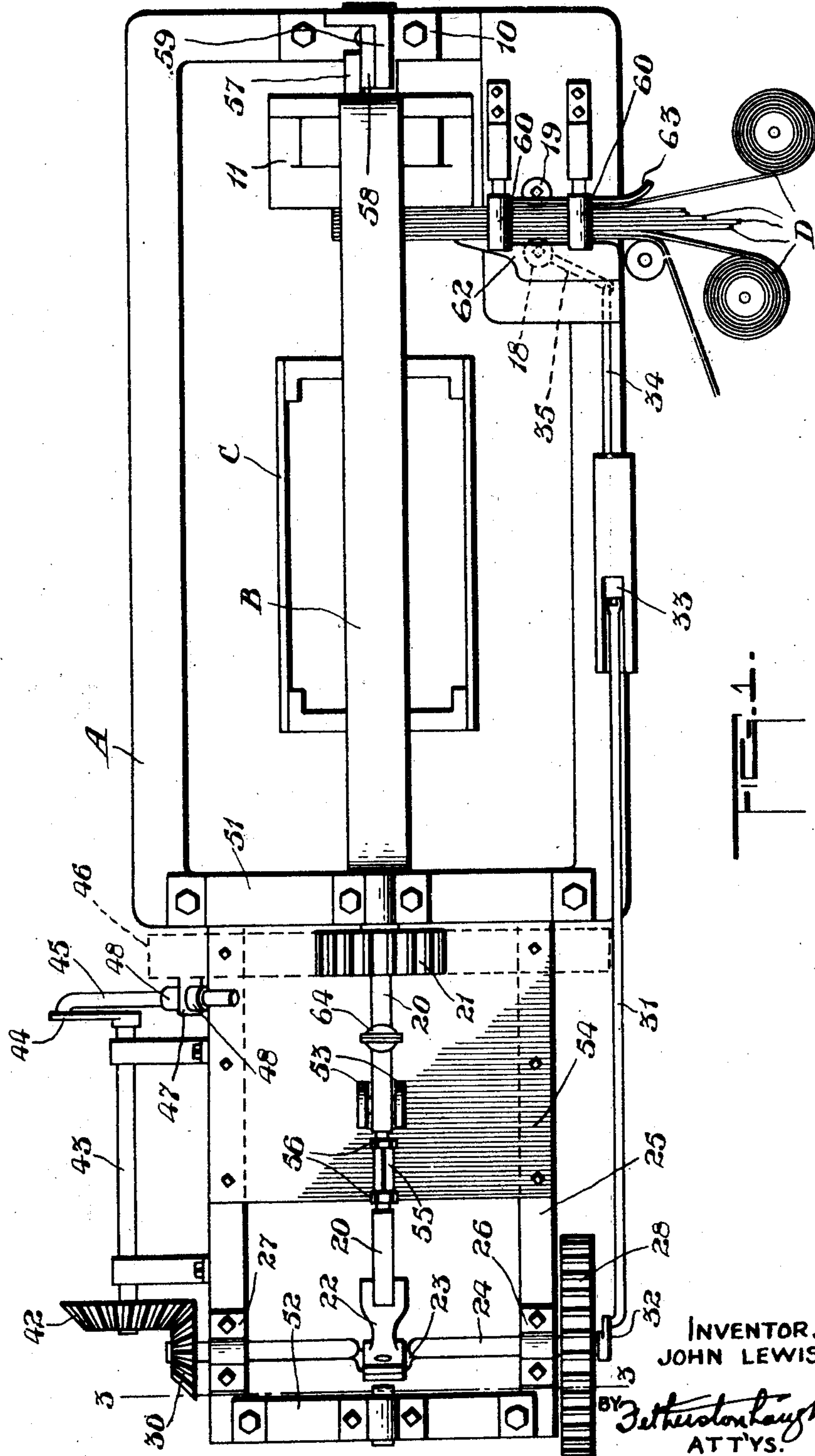
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**J. LEWIS**

# MACHINE FOR MANUFACTURING WOODEN SPOONS

Filed March 28, 1927

4 Sheets-Sheet 1



Sept. 4, 1928.

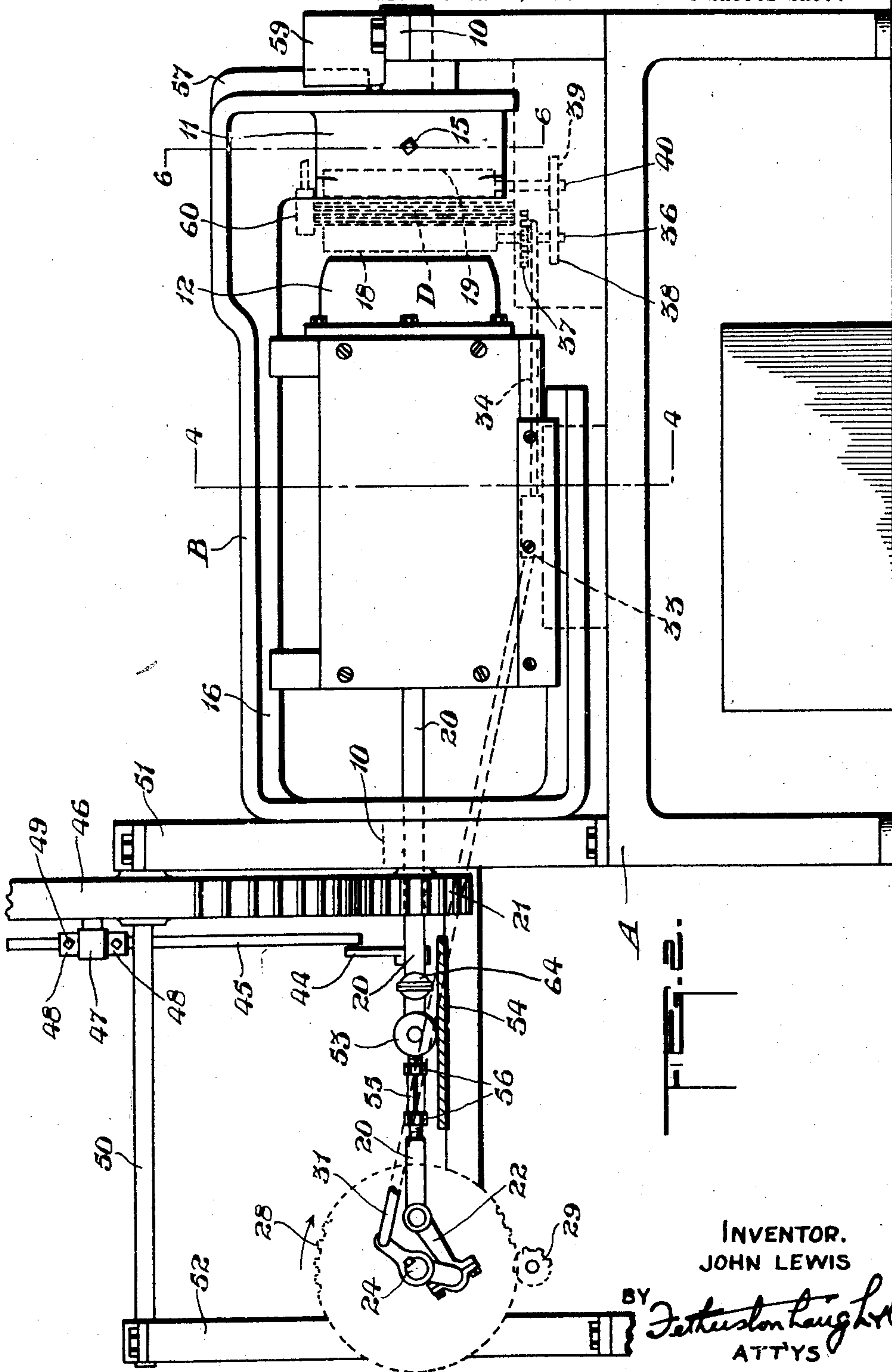
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MACHINE FOR MANUFACTURING WOODEN SPOONS

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4 Sheets-Sheet 2



Sept. 4, 1928.

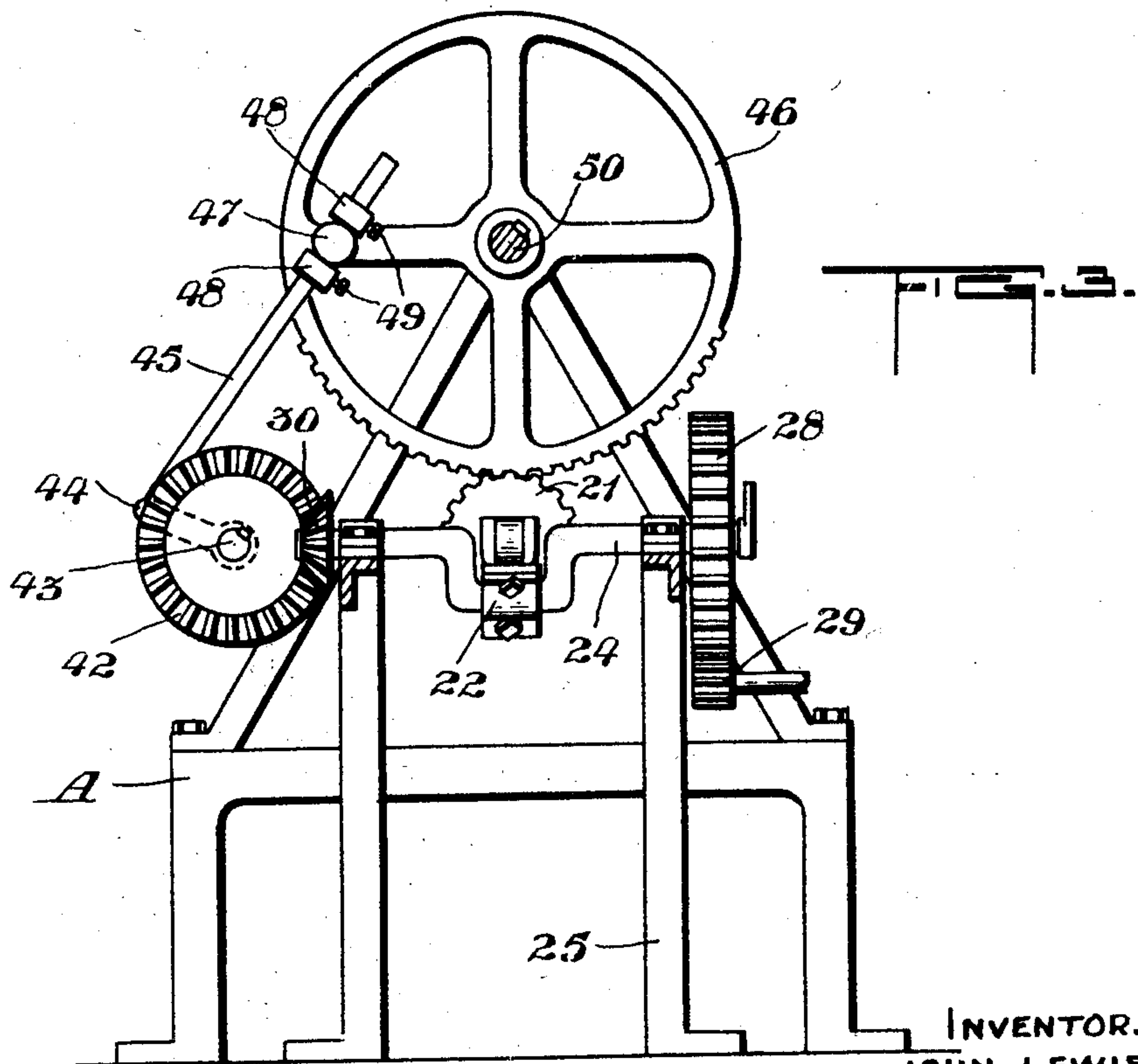
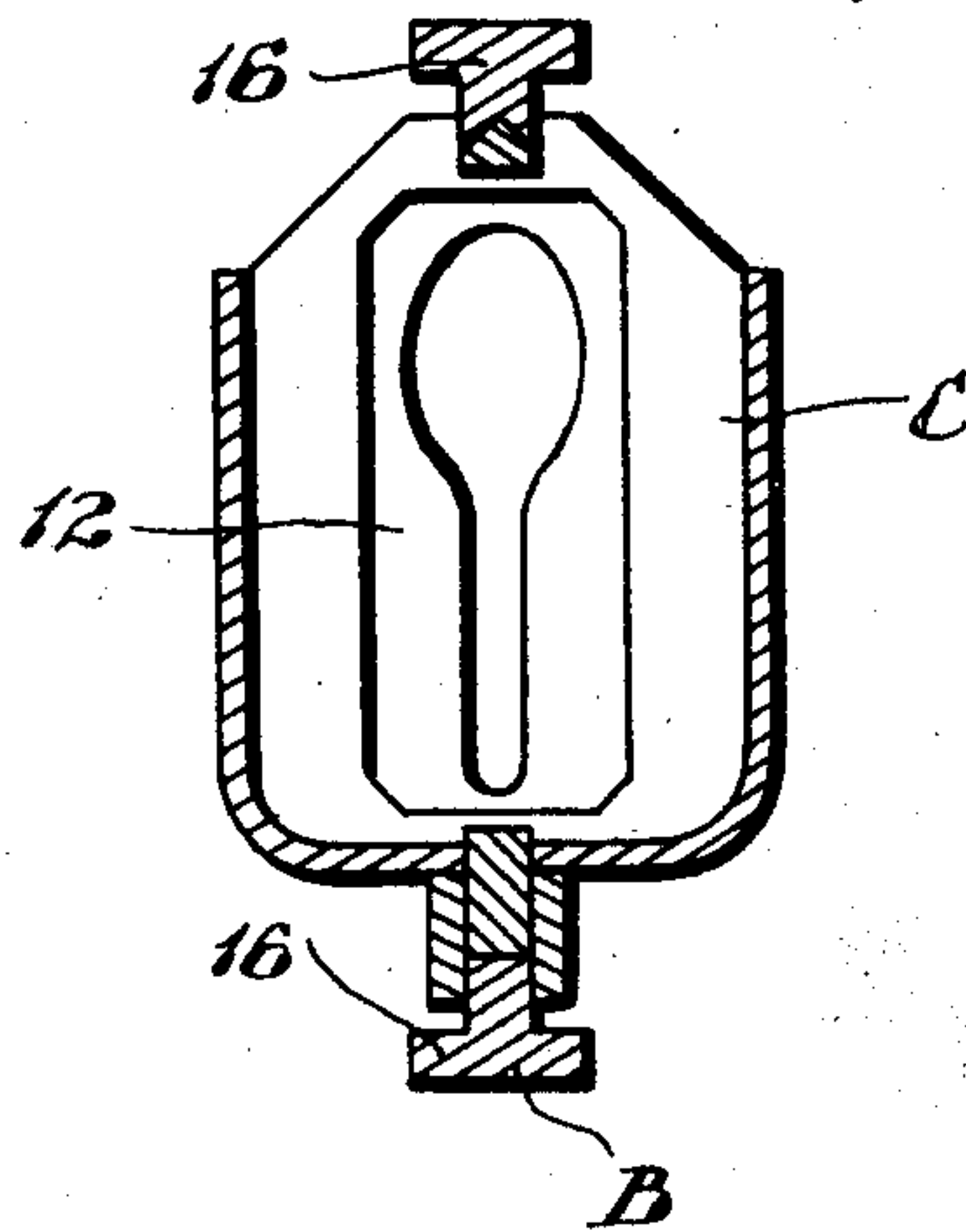
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J. LEWIS

MACHINE FOR MANUFACTURING WOODEN SPOONS

Filed March 28, 1927

4 Sheets-Sheet 3



INVENTOR.  
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Sept. 4, 1928.

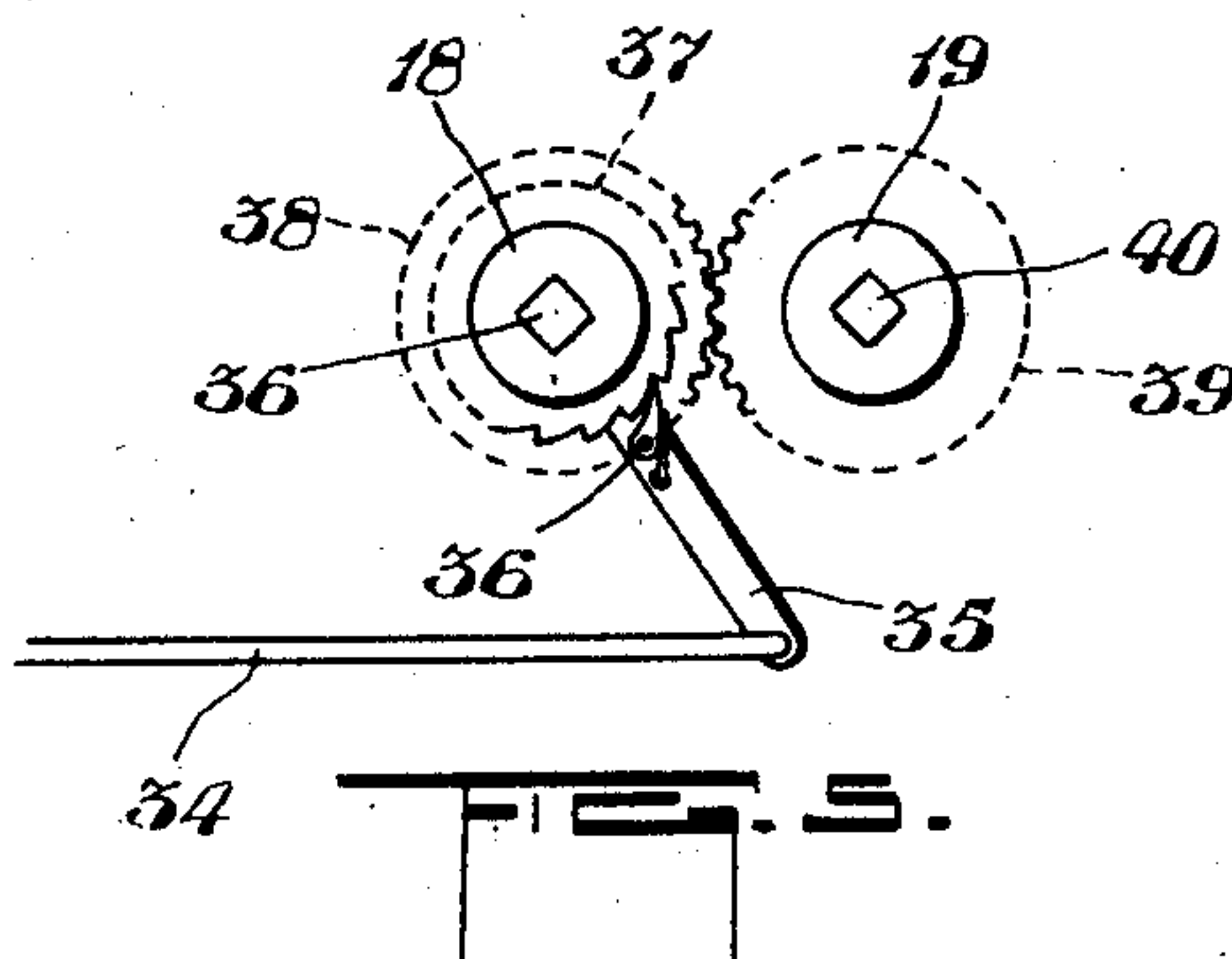
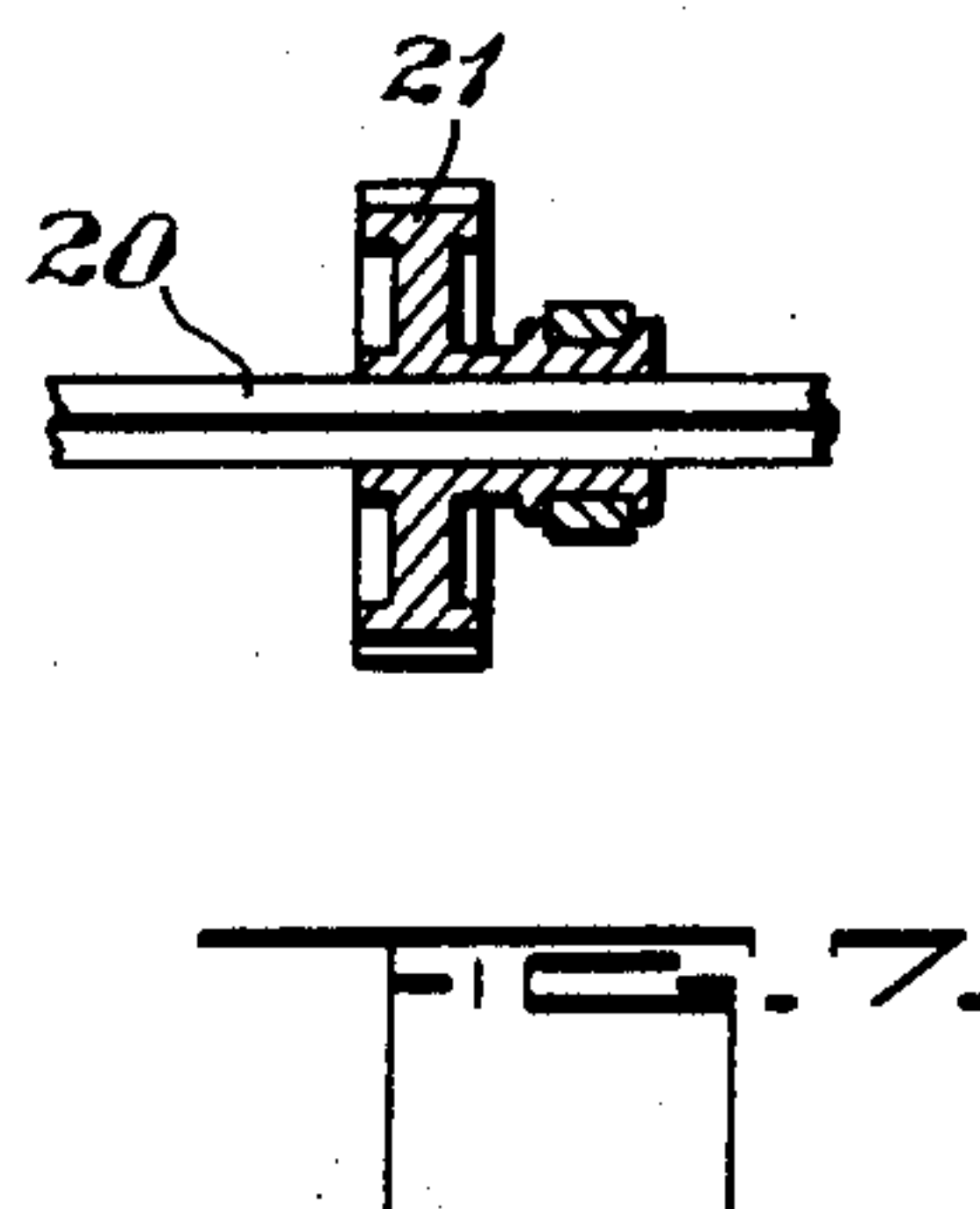
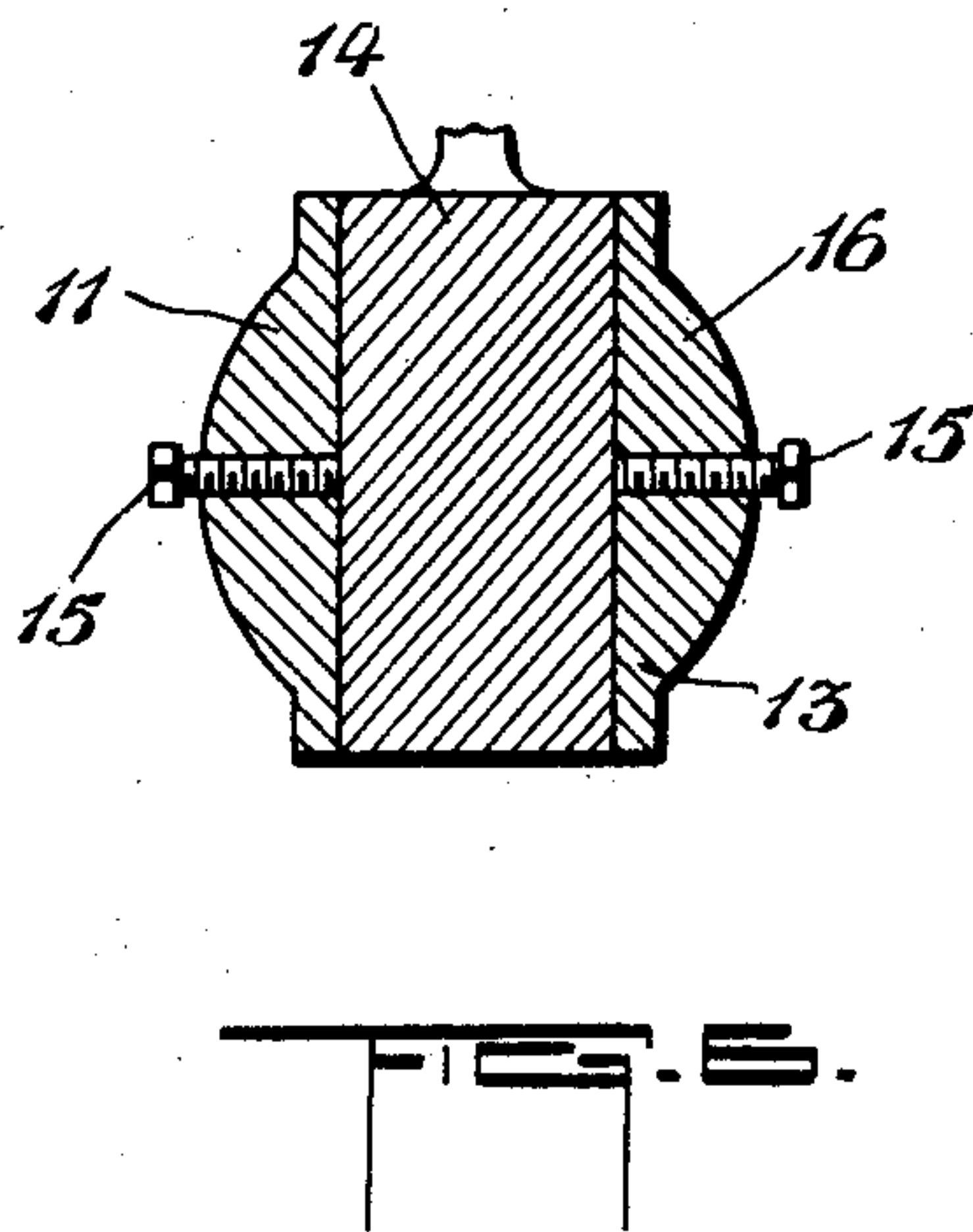
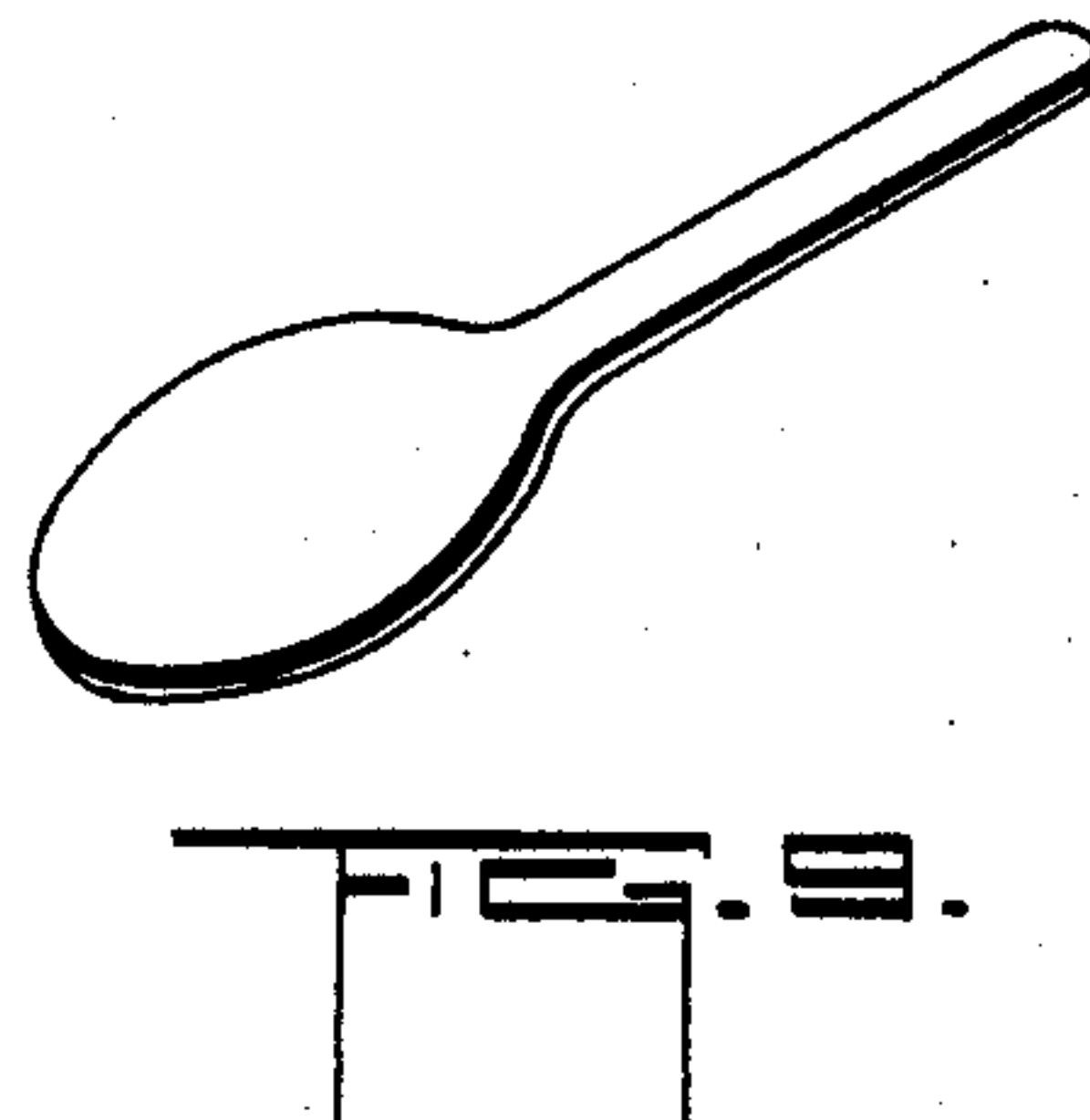
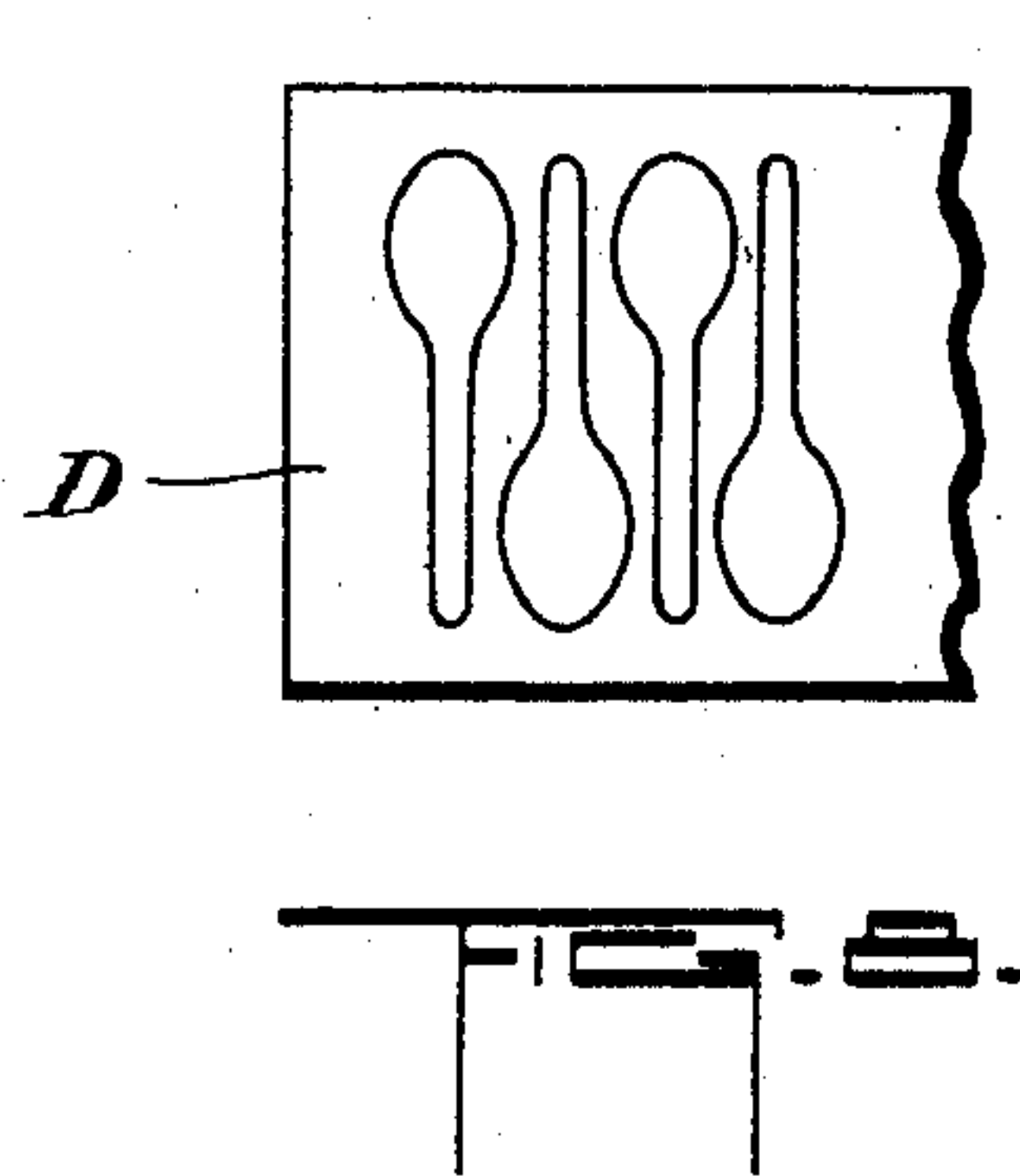
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J. LEWIS

MACHINE FOR MANUFACTURING WOODEN SPOONS

Filed March 28, 1927

4 Sheets-Sheet 4



INVENTOR.  
JOHN LEWIS.

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## UNITED STATES PATENT OFFICE.

JOHN LEWIS, OF BROWNVILLE, MAINE.

MACHINE FOR MANUFACTURING WOODEN SPOONS.

Application filed March 28, 1927. Serial No. 179,143.

This invention relates to improvements in machines for manufacturing wooden spoons, and the objects of the invention are to provide a simply constructed, durable and efficient machine of this description that will more satisfactorily and economically perform the functions required.

The invention further relates to a machine for cutting wooden spoons and other irregular shaped pieces from veneer in such a manner that waste is reduced to a minimum.

With these and other objects hereinafter more fully referred to in view, the essential features of the improved machine include the combination with a reciprocating cutting die and a reversible block member and a slidably operable pocket associated with the die and means for supplying veneer to the die and block, of coordinating and separate mechanisms for operating the die, the pocket and the feeding block at predetermined points in the operation of the machine.

Referring now to the drawings, in which like numerals of reference indicate corresponding parts in each figure,

Figure 1 is a plan view of the improved machine for making wooden spoons.

Figure 2 is a side elevation of my improved machine part of which is in dotted lines for purposes of clarity.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a section taken on the line 4—4 of Figure 2.

Figure 5 is a plan in detail of the mechanism for operating the feed rollers.

Figure 6 is a section taken on the line 6—6 of Figure 2.

Figure 7 is a detail of the operating rod extending through the pinion for reversing the die.

Figure 8 is a plan of a section of veneer with the spoons cut out.

Figure 9 is a perspective detail of the finished spoon.

Referring now more particularly to the drawing, in the improved machine, a preferred example of which is herein disclosed, A indicates the frame in which is turnably mounted, in bearing 10, a substantially horse-shoe frame or casting B, one end of which is formed with a block 11. In this horse-shoe casting, and separably operable

therefrom, is a pocket C to which a cutting die 12 is removably secured.

As shown in Figure 6, the block 11 comprises a bed plate 13 in which is fitted a block 14 of wood or other suitable material retained therein by means of screws 15 on each side thereof.

The frame is, as illustrated in Figure 4, substantially T shaped in cross section as indicated at 16 and is adapted to slidably support therein the pocket member C which is designed to receive the spoons as they are stamped out by the cutting die from the veneer indicated at D as will be hereinafter more fully referred to.

For delivering the veneer to the machine as illustrated in Figure 1 and in dotted lines in Figure 2, I provide feed rollers 18 and 19, the operation of which and the mechanism connected therewith is subsequently referred to.

The means for operating the die comprise a rod 20 extending through the pinion 21, the end of which is pivotally connected by means of the connecting rod 22 to the crank 23 formed on the crank shaft 24 mounted transversely of the frame 25 in suitable bearings 26 and 27 and protruding at each end beyond said frame. On one of these protruding ends is a drive gear 28 driven by the gear 29 which is operated in any suitable manner from the source of power to rotate the shaft 24 and in turn to impart a reciprocating movement to the rod 20 carrying the pocket C and the cutting die 12 thereon, while the opposite end of the shaft has keyed thereon the bevel gear 30.

Synchronized with this operation is the operation of mechanism adapted to feed the veneer to the machine. This comprises the reciprocative movement of the rod 31 connected at 32 to the shaft 24. The rod 31 is connected to the sliding carriage 33 mounted in the frame A in turn connected by the rod 34 to arm 35 mounted on the shaft 36 upon which the feed roll 18 is mounted. The arm 35 is provided with a spring actuated dog 36 which engages the teeth of the gear 37 which in operation will rotate the shaft 36 and feed roll 18 thereon. Adjacent the end of the shaft 36 is a gear 38. This gear is adapted to mesh with the gear 39 mounted on the shaft 40 which carries the feed roller 19.

It will therefore be seen from the foregoing that at a predetermined point in the



operation of the shaft 24 the rolls 18 and 19 will be caused to rotate and feed the veneer D a predetermined distance into the machine.

We now come to the operation of reversing the pocket and the block to synchronize with the operations already described. This mechanism comprises the bevel gear 30 designed to mesh with a bevel gear 42, (see Figure 3) on a shaft 43 at substantially right angles to the shaft 24 and journalled in suitable bearings rigidly mounted on the main frame. On the opposite end of this shaft is a lever arm 44 to which is connected a rod 45 in turn connected to a segment gear wheel 46 through a pivoted sleeve 47 on each side of which, on the connecting rod 45, are collars 48 provided with set screws 49 by which means the stroke of the rod may be adjusted.

The segment gear 46 meshes with the pinion 21, so that on the segment gear being rotated through the operation of the rod 45, gears 42 and 30, the pinion 27 will be operated to reverse the member B and with it pocket C and the block 11 so that the spoons cut out from the veneer will be in the form shown in Figure 8, similar portions of every second spoon being in staggered relationship to the similar portion of the adjoining spoon, thus practically eliminating waste of the veneer.

It will also be noted that the segmental gear 46 is keyed on the shaft 50 journalled in suitable bearings on the auxiliary supports 51 and 52, and although a segmental gear is here illustrated it will be understood that a rack could be used with equally good results. The rod 20 as particularly illustrated in Figures 1 and 2 is provided with a pair of rollers 53 adapted to engage with a plate 54 rigidly mounted on the auxiliary frame whereby downward pressure of the rod 20 is counteracted. The rollers also stabilize the rod 20 during operation and prevent the connecting rod 22 from being thrown out of alignment. The adjusting of the length of the shaft is effected by the turnbuckle 55 which is provided with lock nuts 56.

To limit the travel of the member B during its oscillatory movement, I provide an extension or lip 57 formed integral therewith adapted in operation to contact with the pad 58 of rubber or similar material secured to the upright 59, (see Figures 1 and 2).

In addition to the feed rolls 18 and 19 I provide a pair of rollers 60 and 61 suitably supported and adapted to engage the top edge of the veneer as it is fed to the machine and thus keep the feed uniform. The guides 62 and 63 also materially assist in guiding the material to the machine.

In operation and on the rotation of the crank shaft 24, the rod 20 with the pocket and cutting die 12 thereon, will travel first outwardly then inwardly. Simultaneously with the latter part of the outward and

first part of the inward stroke, the rollers 18 and 19 will be rotated to supply the strips of veneer D from the source of supply in the form of rolls, between the cutting die 12 and the block 11, the spoons cut out or stamped being delivered to the pocket and retained there momentarily.

The block reversing mechanism is synchronized with the backward movement of the rod 20, and will operate to cause the casting B to perform a half revolution, emptying the pocket C of the stamped or cut out spoons and reversing the block 11 so that the next cut of spoons will be upside-down as compared to the first cut, as illustrated in Figure 8. The reversing movement of the rod or shaft 20 is provided for by the universal joint 64.

Then, as the operation proceeds, upon the forward movement of the rod 20, the pocket C will be again in the position as shown in Figure 2, and so on.

It will thus be seen that my improved machine provides for a die, a reversible block opposed to the die, a slidably operable and reversible pocket associated with the die, and co-ordinating mechanisms for simultaneously operating the die and the pocket and causing the pocket at a predetermined point in its travel to automatically perform one half revolution and simultaneously therewith the block to perform a similar operation. In this way, while simultaneously with the latter part of the rearward stroke and part of the forward movement of the die and the pocket, mechanism for feeding the material to the die is automatically thrown into gear and operated and automatically thrown out of gear on the latter part of the forward movement of the die and the pocket.

The die and block as previously stated co-ordinate in movement and operation at the same time. It will be understood that a fixed block and reversing-die can be used with equally effective results.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention, within the scope of the claims, constructed without departing from the spirit or scope thereof, it is intended that all matter contained in the accompanying specification and drawings shall be interpreted as illustrative and not in a limiting sense.

What I claim as my invention is:

1. A machine for cutting wooden spoons and other pieces from veneer, comprising a frame, a casting turnably mounted in the frame, a block rigidly secured to the casting, a separably operable pocket slidably mounted in the casting and a cutting die rigidly secured to the pocket and registering with said block, a connecting rod for the



cutting die, means for imparting a reciprocal movement to said die, mechanism associated with said rod for imparting a reciprocating movement to the die and the pocket, co-ordinating mechanism operable simultaneously with the connecting rod for feeding material to the die, and means for turning the pocket, the die and the block to synchronize with the operation of the die and the means for feeding the material thereto.

2. A machine of the character described comprising a frame, a casting turnably mounted in said frame, a block rigidly mounted in the casting, a pocket member slidably mounted in the casting, a die detachably associated with the pocket, and mechanism, comprising a crank shaft and a connecting rod, for imparting a reciprocating movement to the die and the pocket.

3. A machine of the character described comprising a frame, a casting turnably mounted in the frame, a block rigidly mounted in the casting, a slidably mounted pocket for the casting, and a die associated with the pocket, registering with the block and reciprocally operable with the pocket, means for imparting a reciprocating movement to the die and the pocket.

4. In a machine of the character described, the combination with a turnably mounted supporting member having a block rigidly mounted therein and a pocket and a die reciprocally mounted in said member, of mechanism for feeding material to the die, adapted to synchronize with the operation of the pocket and the die.

5. A machine of the character described comprising a turnably mounted supporting member, a block rigidly mounted therein, a pocket and a die detachably connected and reciprocally mounted in said member, means to reciprocally operate the pocket and the die, comprising a crank shaft and a connecting rod between said shafts and the pocket, mechanism simultaneously operable by the crank shaft for supplying veneer to the die, and means synchronizing with the aforementioned mechanisms for causing the die, the pocket and the block to simultaneously turn.

6. In a machine of the character described, a turnable die and pocket, means for reciprocally operating said die and pocket including a slidable carriage, a rod connecting the slidable carriage with the die and pocket operating mechanism, rollers provided with gears, a rod provided with a spring actuated dog adapted to engage with said gears and connected to the slidable carriage, whereby on the die and the pocket being reciprocally operated material is automatically fed thereto.

7. In a machine for cutting wooden spoons, a turnable supporting member provided with a block and having slidably mounted therein a pocket detachably associated with a die,

a crank shaft, a rod connecting the crank shaft with the die whereby a reciprocating movement is imparted to the die and the pocket, mechanism simultaneously operable by the crank shaft for feeding material to the die, and mechanism intermittently operable for simultaneously turning the die, the block and the pocket.

8. The combination with a turnable supporting member and a reciprocally operable pocket provided with a die, and a block rigidly mounted in the supporting member, of mechanism for operating the pocket and the die, co-ordinating mechanism for feeding material to the die and simultaneously operable with the die operating mechanism, mechanism intermittently connected to the die operating mechanism and operatively connected to the supporting member whereby, at a predetermined point in the operation of the die, and pocket operating mechanism and feeding mechanism for said members, the die, the pocket and the block are partially reversed.

9. A machine of the character described, in which the pocket and block reversing mechanism comprises a turnable supporting member, a pocket provided with a die slidably supported in said member, a block rigidly mounted in said member, crank shaft and connecting rod means for operating the pocket and the die, a pinion on the supporting member, a rotatable shaft, a segmental gear keyed on said shaft and adapted to mesh with said pinion, an intermittently operable rod connected to said gear and operatively connected to the crank shaft whereby, on the crank shaft being rotated to operate the die and the pocket, the segmental gear being intermittently operated to cause, at a predetermined point in the operation of the pocket and the die, the supporting member to partially reverse the pocket and the block and whereby, on the crank shaft continuing to rotate, the supporting member automatically returns to normal position.

10. In a machine of the character described, a frame, a turnable supporting member in said frame, a pocket slidably mounted in the frame and having a die secured thereto, a block rigidly mounted in the supporting member, a crank shaft, means for operating said shaft, means connecting the crank shaft with the pocket and the die whereby a reciprocating movement is imparted thereto, mechanism co-ordinating and synchronizing with the crank shaft for feeding material to the die, and mechanism co-ordinating with the aforementioned mechanisms and intermittently operable for causing the supporting member to turn the pocket, the block and the die.

In witness whereof I have hereunto set my hand.

JOHN LEWIS.