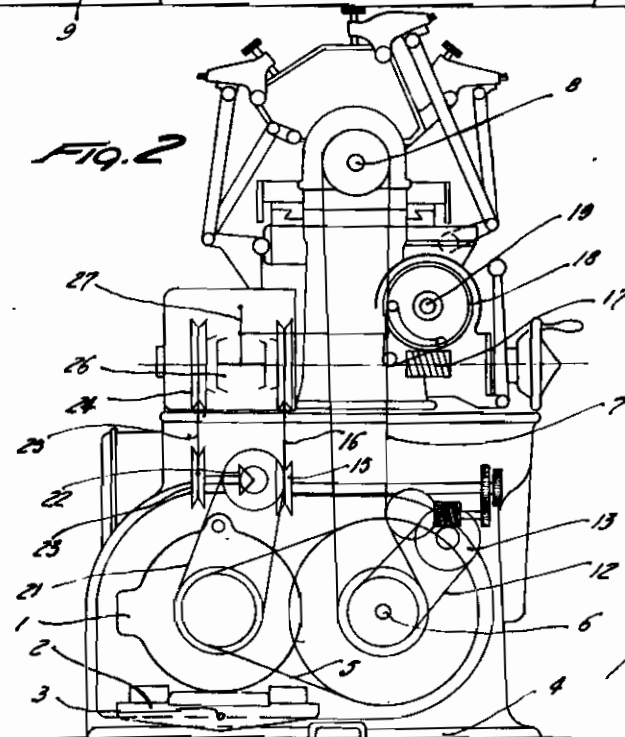
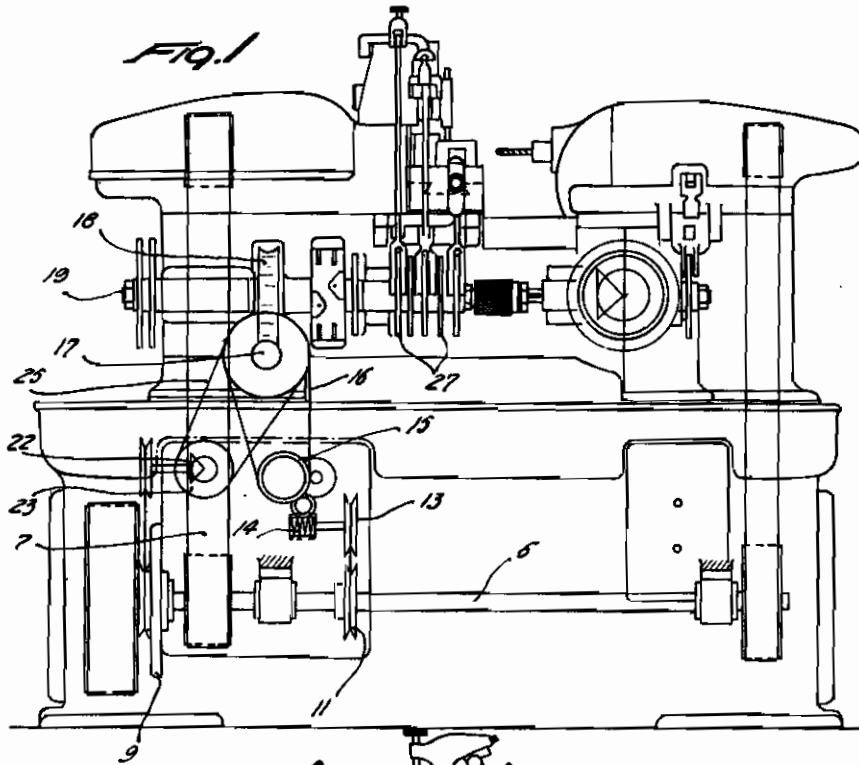


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AUTOMATIC SLICING LATHES
Filed March 27, 1941

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2 Sheets-Sheet 1

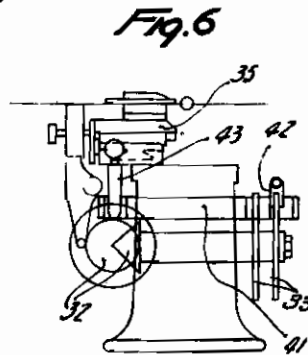
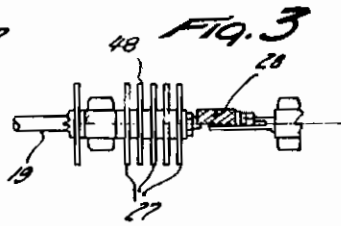
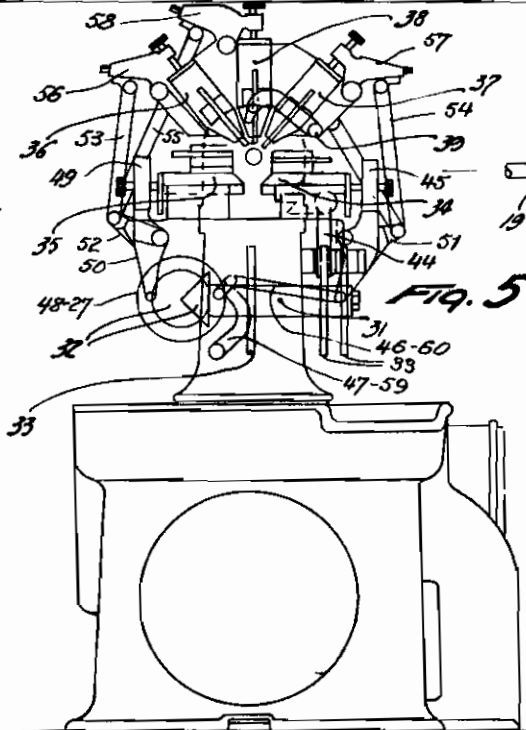
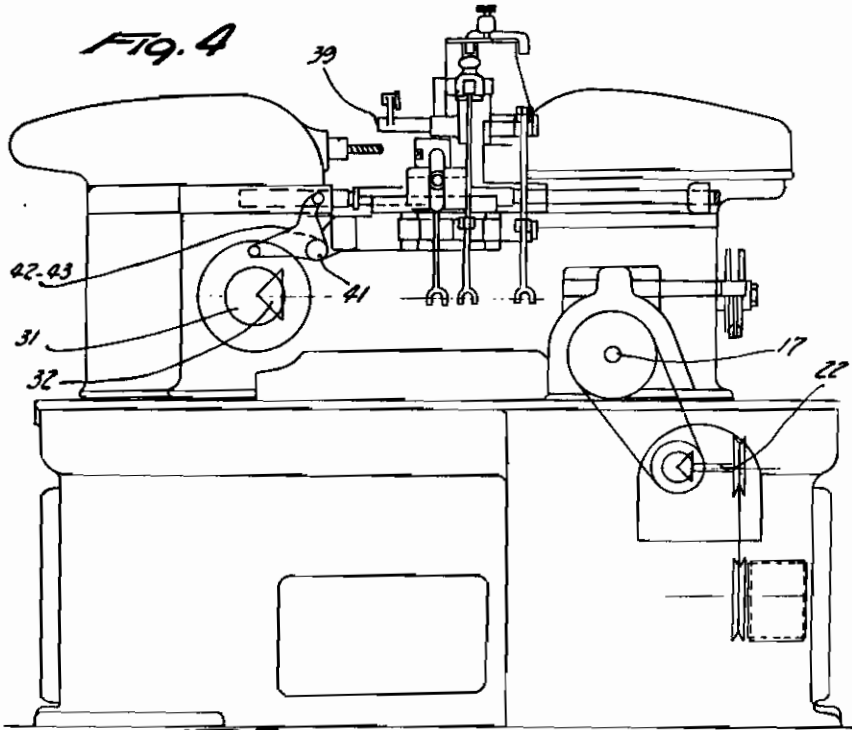


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ALIEN PROPERTY CUSTODIAN

AUTOMATIC SLICING LATHES

Georges Emile Cuttat, Paris, France; vested in
the Allen Property Custodian

Application filed May 27, 1941

The object of the present invention is an automatic lathe with fixed head stock, comprising a number of members suitably cooperating for forming various manufactured articles starting from a bar with round, square or other cross-section.

The various members have been designed with the view of avoiding all lateral stresses in all the parts, the transmission being effected from the control member (cam or other) to the controlled member in one single plane perpendicular to the axis of the control member.

The cams may be mounted in a manner to facilitate their replacement. They may be fixed to two shafts perpendicular to one another.

The main cam shaft and its controls may be arranged on the front side of the lathe, thereby greatly facilitating their access.

Other characteristics of the automatic lathe according to the present invention will appear from the following specification of a machine chosen by way of example and shown on the joined drawings, in which:

Figure 1 is a front elevation,

Figure 2 is a side elevation, from the motor side,

Figure 3 shows a detail of the cam-shaft coupling,

Figure 4 is a rear elevation,

Figure 5 is a side view with a section through the carriages, and

Figure 6 shows an alternative control of the front carriage moving longitudinally.

The lathe is driven from an electric motor 1 mounted in a cradle 2 which may oscillate about pivot 3 fixed to the cup-shaped frame member 4 (Figure 2). The motor 1 drives through the means of belt 5 the main shaft 6 which sets up the independent rotations controlling the spindle-carrying head stock, the cam shaft, the drilling, the inside screw cutting and other devices, the rotations of these various parts remaining independent from one another.

Shaft 6 controls directly, over belt 7, the rotation of the spindle carrying shaft 8.

Said shaft 6 is specially supported by a movable bearing 9 which may be rapidly dismantled and thus permits the introduction or eventual replacement of belt 7 without requiring a dismantling of any other part. It is thus possible to use an endless belt.

A pulley 11 keyed to shaft 6 drives, over a belt 12, another pulley 13 driving an endless screw 14 acting, over suitable gears forming a variable speed device, on a pulley 15 driving

over belt 16 the endless screw 17 meshing with a gear drilled in 18 and keyed to the cam shaft 19.

On the other hand, motor 1 may drive, over a belt 21 (Figure 2) a bevel gear 22 acting, over pulleys 23, 24 and belt 25, upon the shaft of the endless screw 17. On this shaft is interposed a friction cone clutch 26 permitting, by means of a lever 27, to couple with the screw 17 either of the drives coming from motor 1, at will, and thus to cause the cams to rotate faster during the non-working periods.

The shaft 19 carrying the cams 27 (detail on Figure 3) is formed of two portions with a certain interval between their ends and connected by a coupling muff 28 according to the French patent application filed August 1-st, 1939, by Société de Manufacture de Machines du Haut-Rhin, for "Device for coupling two shafts in line." By moving this coupling muff 28, it is possible to set free the interval between the shaft ends for extracting or inserting the cams 27 when these are being replaced by others.

The position of these cams 27 and the drive of the working carriages have been especially designed with the view of avoiding all transverse stresses on the axes and levers.

In order to obtain this result in all cases, the drive of the longitudinal displacements with respect to the machine axis is effected by a cam shaft member 31 perpendicular to the main cam shaft 19, the connection of both shafts being effected by a bevel gear 32 with spiral teeth. The cams of this perpendicular shaft are referred to as 33.

The machine described and illustrated as a non-limitative example comprises five tool-carrying carriages 34, 35, 36, 37 and 38 and an adjustable stop 39 (Figures 4 and 5). One of the tool carrying carriages, 34, is shown as comprising two crossed slides. The middle slide may move longitudinally with respect to the lathe axis by sliding in a lower slide fixed to the lathe bench, its movement being controlled by a lever 44. On this middle slide and perpendicular to it is arranged an upper slide controlled by means of a lever 45 and ensuring the required position of the tool during the work. The connection of this lever 45 with the cam shaft is effected over the connecting rod 46 and an intermediate lever 47 resting on the cam 46; due to this arrangement, the stresses are transmitted from cam to tool in one single plane.

On the detailed Figure 5, the carriage 35 has been shown as being capable of a single transverse motion with respect to the lathe axis, but

it could also, as shown in Figure 6, be realised with two crossed slides, similarly to carriage 34. In this case, the lever for longitudinal motion would be the only member to be stressed not in a single plane, since the drive is taken off the cam by lever 42 while the push on the slide is set up by lever 43. The required precision of the motion is obtained by a rigid mounting of levers 42 and 43 on the axis 41 in order to suppress torsion stresses. The transverse setting of the tool-carrier is effected by lever 49.

The tool carrying carriages 36, 37 and 38 are also provided with a direct drive and the transmission stresses between the roller resting on the cam and the push point on the slide are all in one same plane, the transmission running over levers 50, 51 and 52 resting on the cams, over

the intermediate connecting rods 53, 54 and 55, and finally over levers 56, 57 and 58 driving the carriages on their slides. Carriage 37 is the only one provided in addition with an intermediate lever 59 and a connecting rod 60, without, however, changing whatsoever in the novel principle relating to the transmission of the driving forces.

Apart from the tool carrying carriage, the machine may be fitted in addition with devices for forming the end of bars, with devices for the various simple or composite drilling, threading and boring operations, according to the particular uses of the machine, and, eventually, with auxiliary apparatus for drilling, threading and other operations, supplied by transport arms.

GEORGES EMILE CUTTAT.