

No. 791,225.

PATENTED MAY 30, 1905.

J. C. STEEN.  
SHAPING MACHINE.  
APPLICATION FILED APR. 13, 1904.

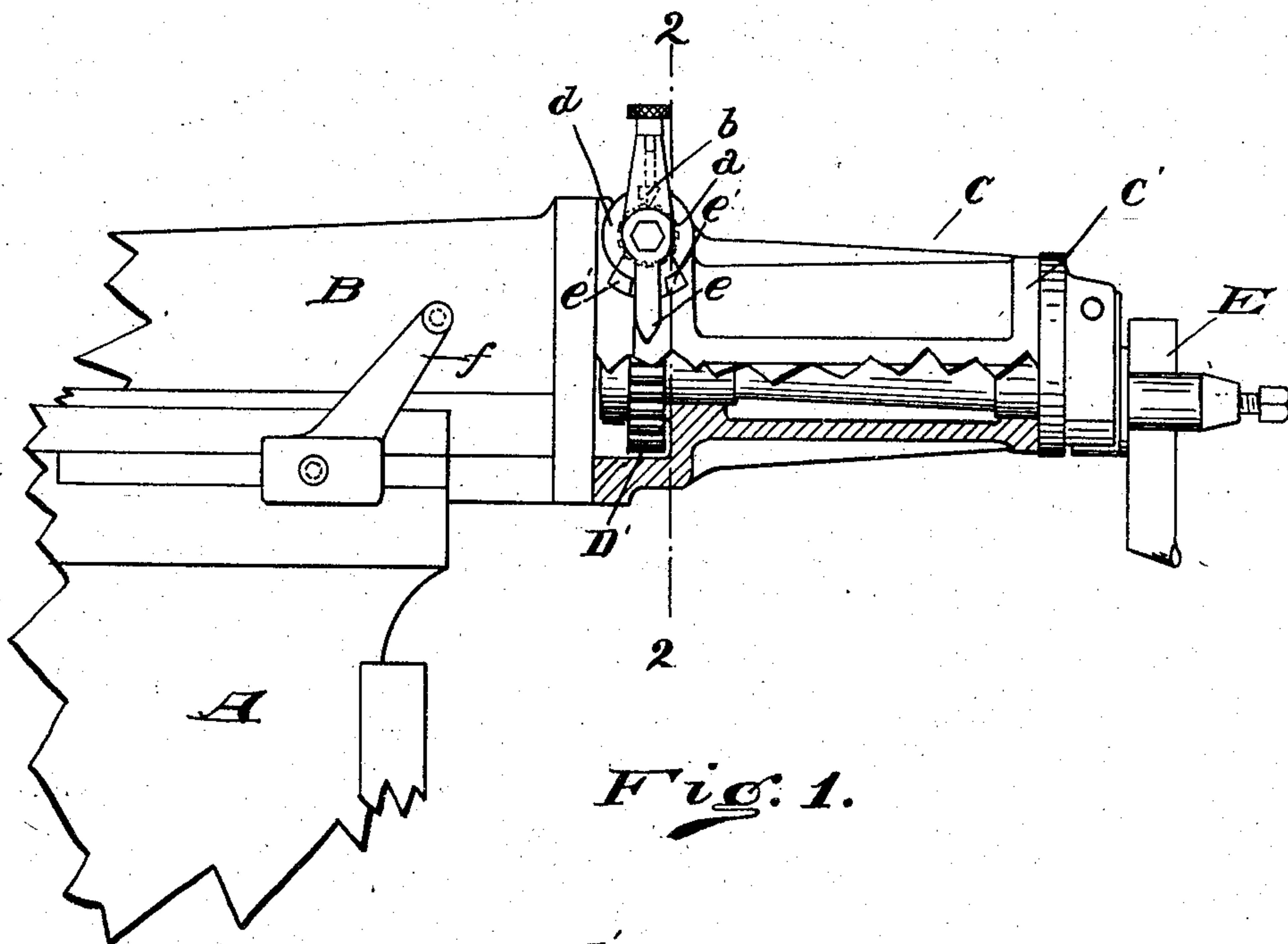


Fig. 1.

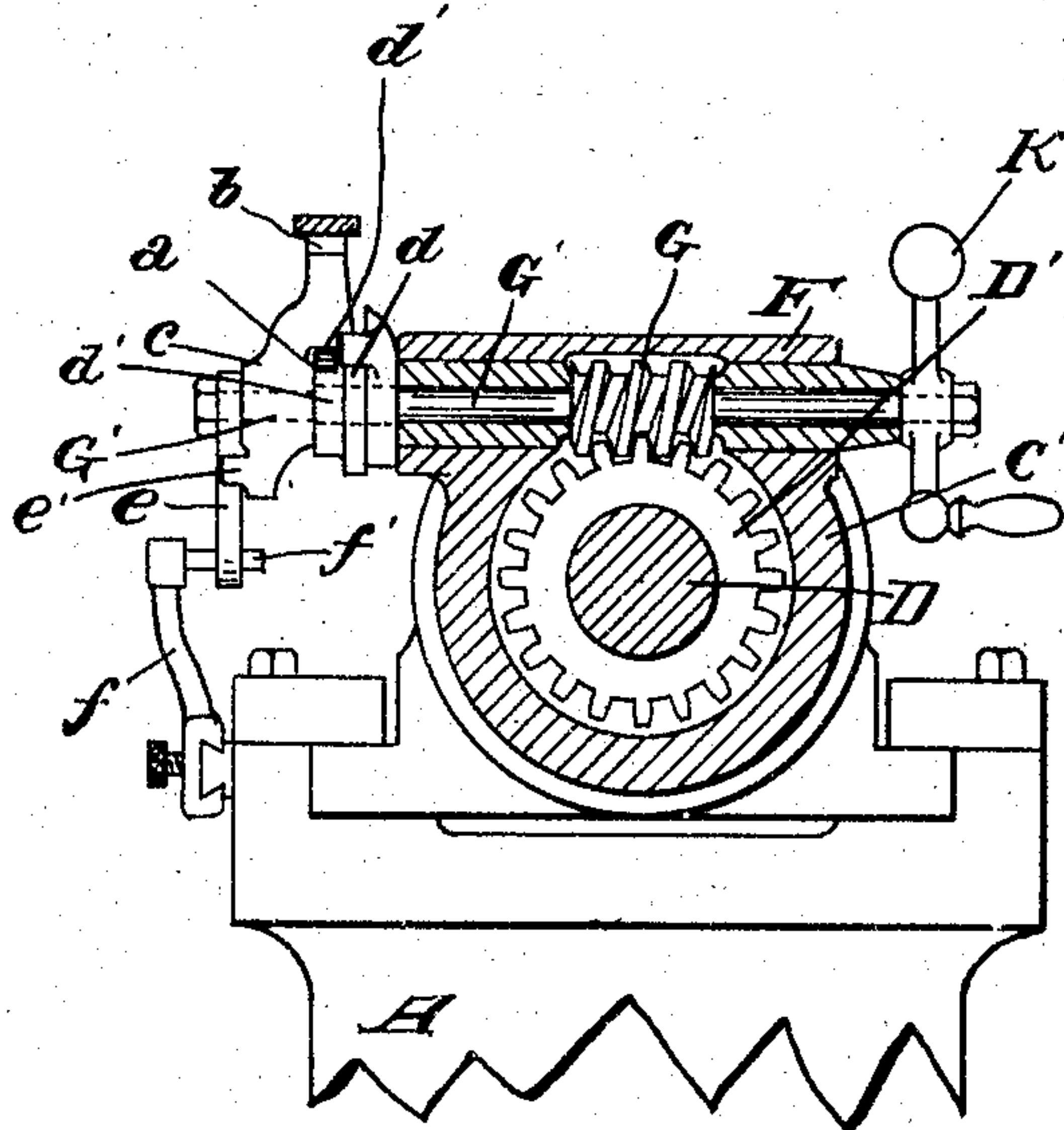


Fig. 2.

Witnesses  
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# UNITED STATES PATENT OFFICE.

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## SHAPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 791,225, dated May 30, 1905.

Application filed April 13, 1904. Serial No. 202,944.

*To all whom it may concern:*

Be it known that I, JAMES C. STEEN, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Improvement in Shaping-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of my specification.

My invention relates to shaping-machines, and more particularly to the tool-carrying head thereof. Its object is to provide a head which is adapted to plane or mill out concave cylindrical surfaces and which is connected with mechanism by which the circular feed of the tool may be varied at will, but always maintained constant at the rate of feed determined upon. Its advantages will appear as I proceed with my specification.

In the drawings, Figure 1 is a side elevation of my invention shown partially in vertical section. Fig. 2 is a section through the same on the line 2 2 of Fig. 1.

A is the bed of the shaping-machine, B the ram, and C the tool-head. The head C comprises an outer casing or sleeve C', which is rigidly secured to the ram, and a tool-holder swivel D, which extends the length of said sleeve or outer casing C' and is suitably journaled therein so as to have no longitudinal play. The tool E is adjustably secured to the end of the tool-holder swivel D below its center in any convenient and usual manner.

It is apparent that an intermittent rotation of the tool-holder swivel at each reciprocation of the ram will cause the tool to drive over a concave cylindrical surface. This is produced as follows: At the inner end of the swivel D a worm-wheel D' is secured. The inner end of the casing C' above the worm-wheel is provided with a journal-box F, in which works a worm G, mounted on a shaft G'. One end of the shaft G' projects beyond the journal F. Loosely mounted on the projection of the shaft G' is a rocker c, carrying the spring-controlled reversible pawl b, which normally engages with a ratchet-wheel a,

keyed to the shaft G'. Loosely mounted on a boss on the end of the journal-box is a sleeve d, having a projecting flange d', which covers the teeth of the ratchet-wheel a except for a short distance, where it leaves it exposed to the action of the pawl b. A depending arm e is loosely mounted on the end of the shaft G' and is adapted to engage with extending lugs e' e' on the end of the rocker c, so that the rocking of the arm e will be communicated to the rocker c. A bracket f, carrying a pin f', is adjustably mounted on the bed-plate of the machine. The construction and arrangement of the rocker-arm, ratchet-wheel, and sleeve is substantially like that described in Letters Patent No. 656,795, granted to Steen and Warner, and its operation is apparent from the drawings.

It is evident that as the ram reciprocates backward and forward the arm e will be struck by the pin f' and the shaft G' intermittently rotated by means of engagement of the pawl b with the ratchet-wheel a and that the amount of this rotation at each stroke and its direction is controlled by the adjustment of the sleeve d and the pawl b, as described in the patent referred to. The rotation of the shaft G' will of course through the worm G cause the worm-wheel D' to rotate, and with it the tool-holder swivel D. The tool will thus be caused to travel over a concave cylindrical surface, the rate and direction of its circular feed being determined by the positions of the sleeve d and the pawl b. The shaft G' is preferably provided with a hand-wheel K for quick angular adjustment of the swivel.

Having thus described my invention, what I desire to claim as new and to cover by Letters Patent is—

1. In a shaping-machine, in combination with the bed-plate and ram, a tool-head comprising an outer shell or casing, and a tool-holder swivel journaled therein, a worm-gear keyed to said swivel, a worm journaled on said outer casing in engagement with said worm-wheel, and mechanism intermediate the bed-plate and said worm-shaft, adapted to intermittently rotate said swivel upon the

reciprocation of the ram, substantially as described.

2. In a shaping-machine, in combination with the bed-plate and ram, a tool-head  
5 comprising an outer shell or casing and a tool-holder swivel journaled therein, a worm-gear keyed to said swivel, a worm journaled on said outer casing in engagement with the  
said worm-wheel, a ratchet-wheel keyed to  
10 said worm-shaft, a rocker-arm journaled on said shaft, a spring-controlled pawl carried

by said rocker-arm, adapted to engage said ratchet-wheel, means for regulating the effective throw of said rocker-arm, and mechanism intermediate said rocker-arm and said  
15 bed-plate adapted to rock the same upon the reciprocation of said ram, substantially as described.

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