

No. 840,217.

PATENTED JAN. 1, 1907.

E. O. HUVIG.

MACHINE FOR BENDING ANGLE IRON AND THE LIKE INTO DIFFERENT  
SHAPES OF CURVATURE.

APPLICATION FILED SEPT. 14, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

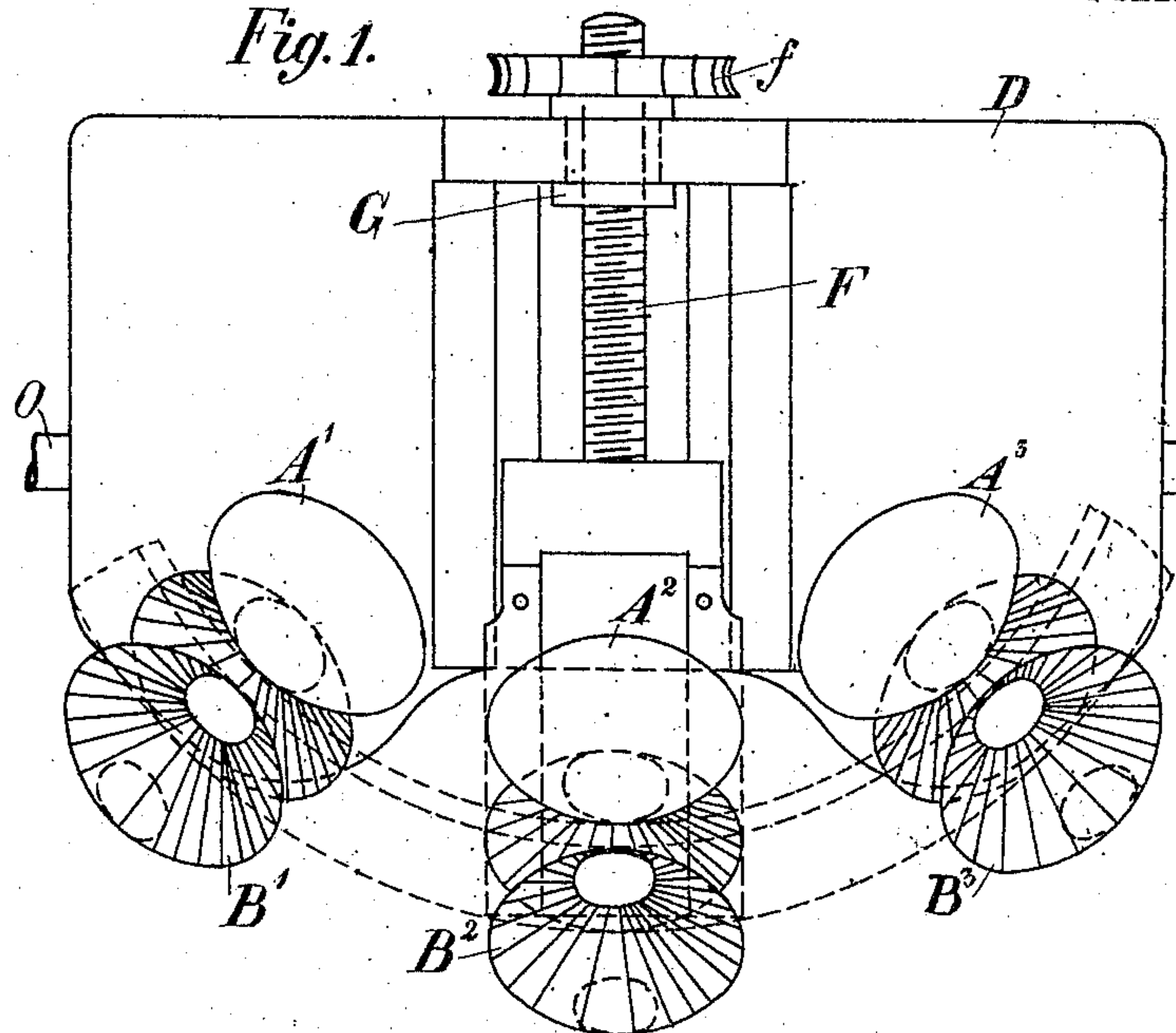
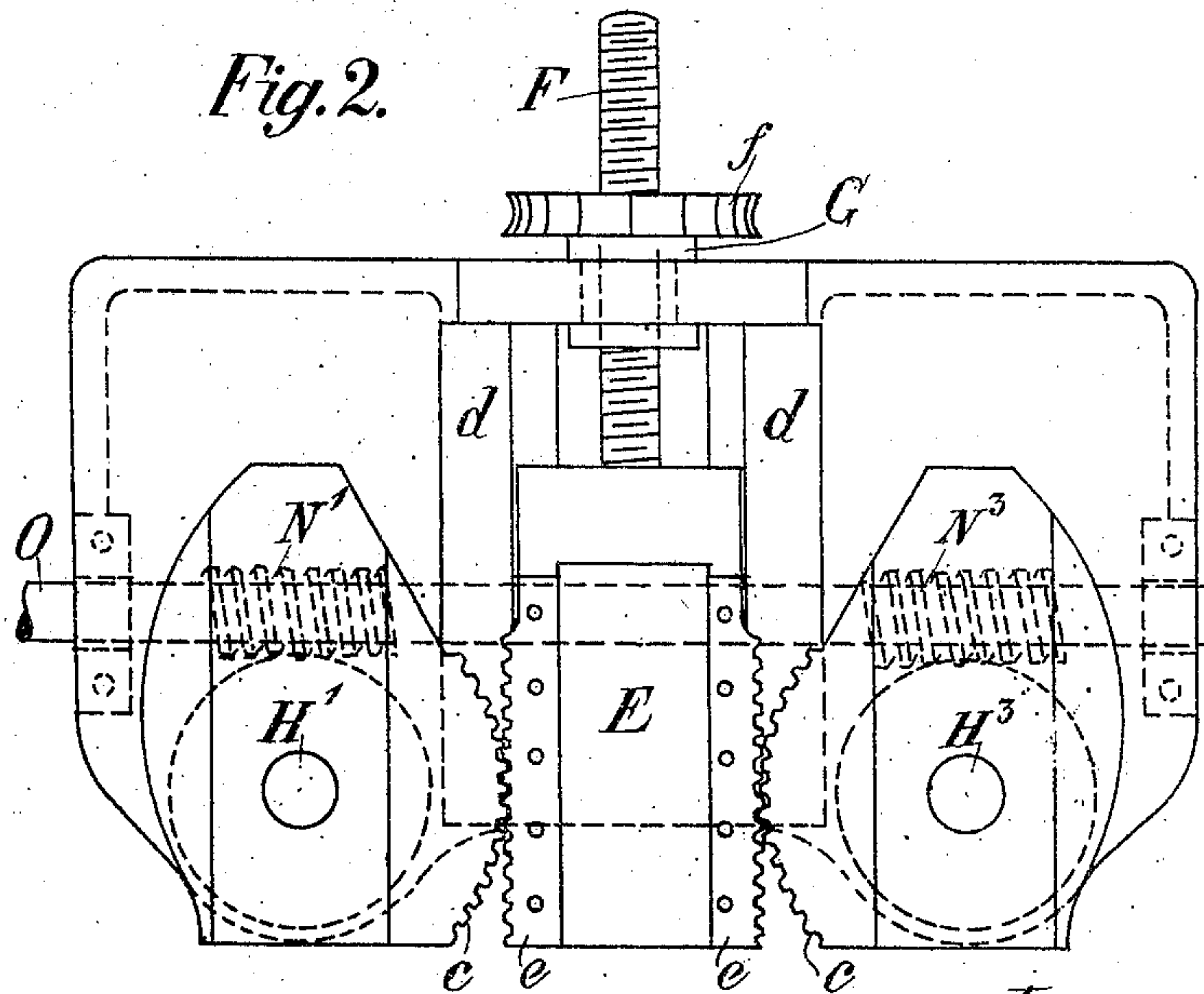


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2

Fig. 3.

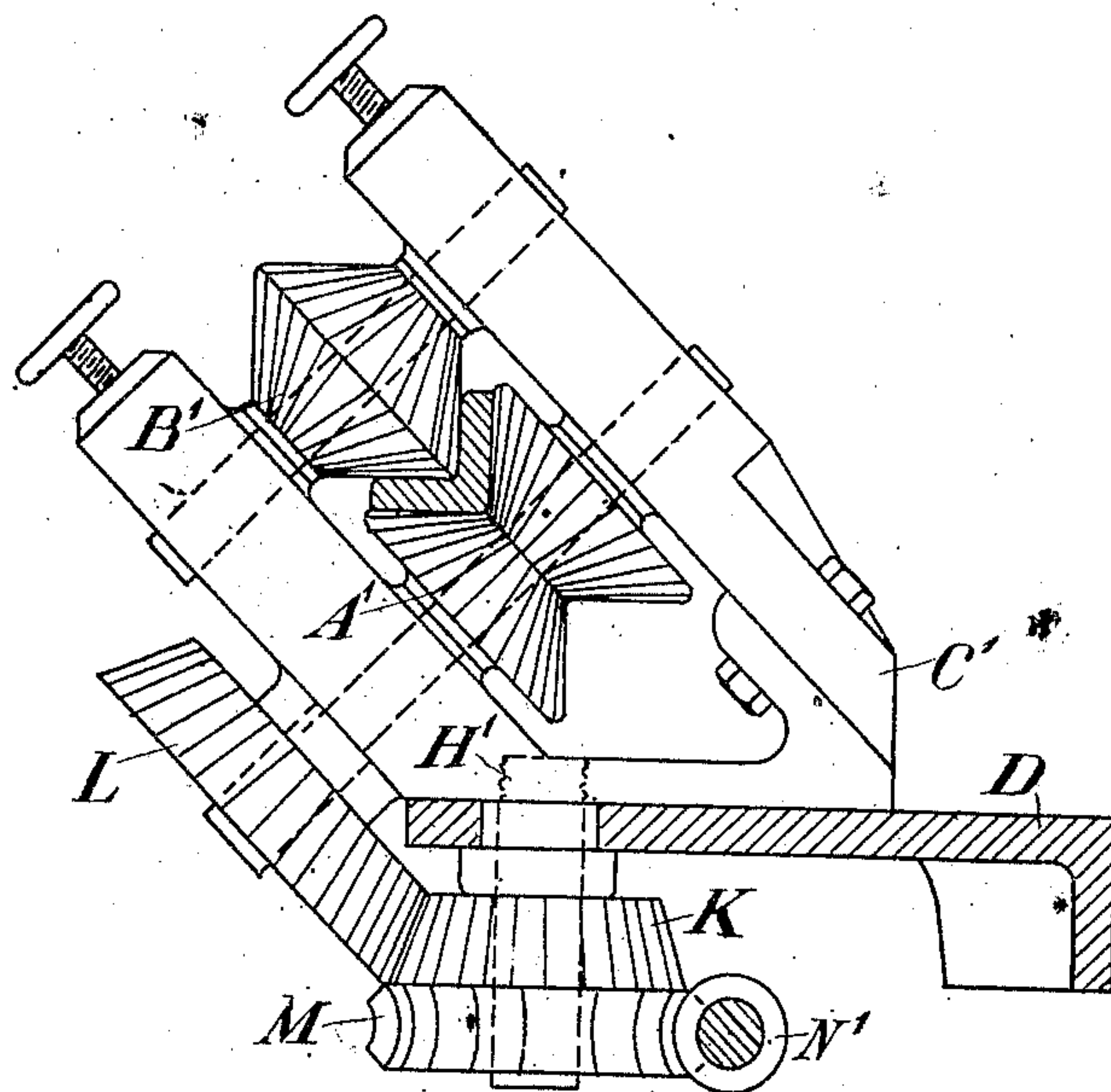
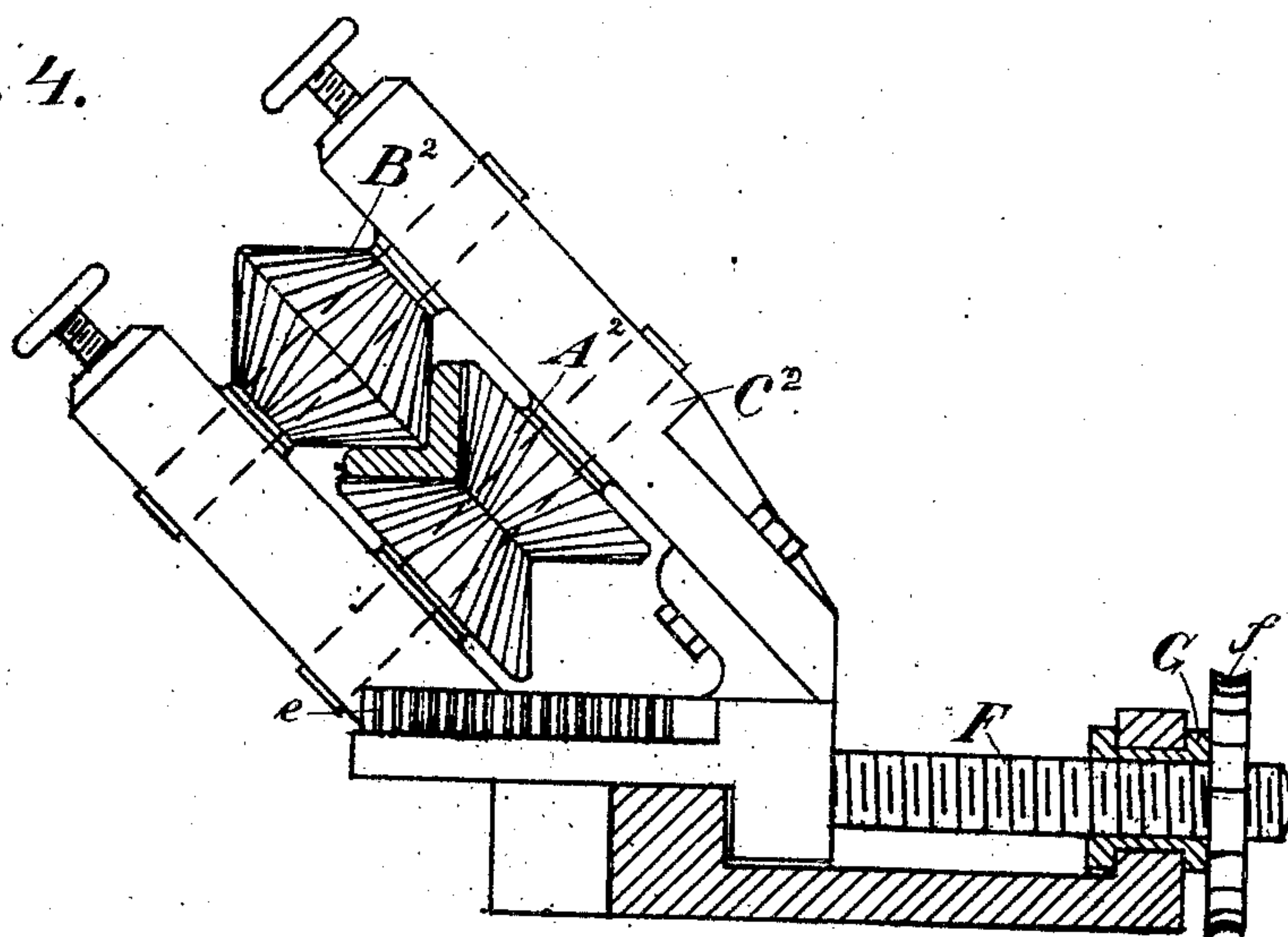


Fig. 4.



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# UNITED STATES PATENT OFFICE.

ELIAS OLSEN HUVIG, OF MOSS, NORWAY.

MACHINE FOR BENDING ANGLE-IRON AND THE LIKE INTO DIFFERENT SHAPES OF CURVATURE.

No. 840,217.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Application filed September 14, 1906. Serial No. 384,667.

*To all whom it may concern:*

Be it known that I, ELIAS OLSEN HUVIG, a subject of the King of Norway, residing at Moss, Norway, have invented certain new and useful Improvements in Machines for Bending Angle-Iron and the Like into Different Shapes of Curvature, of which the following is a specification, reference being had therein to the accompanying drawings.

The present invention relates to improvements in machines for bending angle-iron into different shapes of curvature—for instance, ship-frames, flanged rings for boilers, and the like—and also for straightening angle-iron. The bending may be performed with the material to be worked hot or cold, according to the radius of the curve being short or long.

The machine comprises chiefly three roller pairs, which are mounted on a common base-plate or table, and thus that the middle pair is movable in a straight line, while the two side pairs are turnable on pivots.

The principal feature of my invention is the provision of means for individually and forcibly placing the roller pairs in their proper position for obtaining the desired curvature or the straight line and also the means for feeding the material through the roller pairs.

A machine constructed according to my said invention is illustrated in the appended drawings, in which—

Figure 1 represents a plan view of the base-plate of the machine, showing the three roller pairs, but with their supports removed, the material to be curved shown in dotted lines. Fig. 2 represents a plan view of the base-plate of the machine, but with the rollers and their supports partly removed, only showing bottom of supports with gearing and placed for straightening an angle-iron or the like. Fig. 3 represents a side elevation of one of the side roller pairs, showing driving-gear and section of base-plate. Fig. 4 represents a side elevation of middle roller pair, showing adjusting device and section of base-plate.

The machine consists of the three pairs of rollers  $A' B'$ ,  $A^2 B^2$ ,  $A^3 B^3$ , which are mounted in supports, of which only the supports  $C'$  and  $C^2$  for the left-hand pair and for the middle pair are shown, the support of the right-hand pair being identical with the one of the left-hand pair. The working faces of the said rollers are in the present case formed for

right-angled irons; but they might have any other form, according to the profile to be worked. The supports of the roller pairs are mounted on a base-plate or table  $D$ . The support  $C^2$  of the middle roller pair is mounted on a plate  $E$ , which is slidably mounted in the base-plate  $D$ , being guided between fixed bars  $d$ , so as to move in a straight line. The said plate  $E$  is operated by means of a screw-spindle  $F$ , which is secured to the plate  $E$  at one end and passes through a threaded sleeve  $G$ , journaled in the table  $D$ , and provided with a worm-wheel  $f$ , to be operated by screw or worm. (Not shown.) The supports  $C'$  and  $C^3$  are rotatably mounted on pivots  $H'$  and  $H^3$ , said pivots being journaled in the table  $D$ . The feeding of the material (the angle-iron) through the machine is done by the side roller pairs  $A' B'$  and  $A^3 B^3$ , and for this purpose the rollers  $A' A^3$  are rotated by any suitable means. In the present case I provide gears  $K$ , which are rotatably mounted on the pivots  $H'$  and  $H^3$  below the table  $D$ , each gear meshing with a gear  $L$  on each of the shafts of the rollers  $A'$  and  $A^3$ . The gears  $K$  are each combined with a worm-wheel  $M$ , which is operated each by a worm  $N' N^3$ . In order to obtain a uniform motion of the two rollers  $A'$  and  $A^3$ , the two worms are fixed on a common shaft  $O$ .

The adjustment of the roller pairs  $A' B'$ ,  $A^2 B^2$ ,  $A^3 B^3$  to any desired curvature and to a straight line may be done in different ways. In the present case I provide the plate  $E$  of the middle support with racks  $e$ , which mesh with teeth  $c$  on the bottom plates of the supports  $C' C^3$ . The adjustment of the three roller pairs is thus performed simultaneously by turning the wheel.

Having now described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for bending angle-irons and the like, the combination of a central roller pair and two side roller pairs, means for positively moving the central roller pair on a straight line and for simultaneously and positively adjusting the side roller pairs angularly with relation to the central roller pair.

2. In a machine for bending angle-irons and the like, the combination of a central roller pair and two side roller pairs, means for positively moving the central roller pair on a straight line and for simultaneously and positively adjusting the side roller pairs an-



gularly with relation to the central roller pair and means for positively driving the side roller pairs.

3. In a machine for bending angle-irons and the like, the combination of a central roller pair and two side roller pairs means for forcibly moving the central roller pair, means for forcibly moving the side roller pairs to adjust them to different angles and

means for positively driving the side roller pairs.

In testimony whereof I affix my signature in presence of two witnesses.

ELIAS OLSEN HUVIG.

Witnesses:

N. G. TAUDBERG,

MICHAEL ALGER.