(No Model.)

E. BOETTCHER.

DEVICE FOR CONVERTING MOTION.

No. 305,503. Patented Sept. 23, 1884.

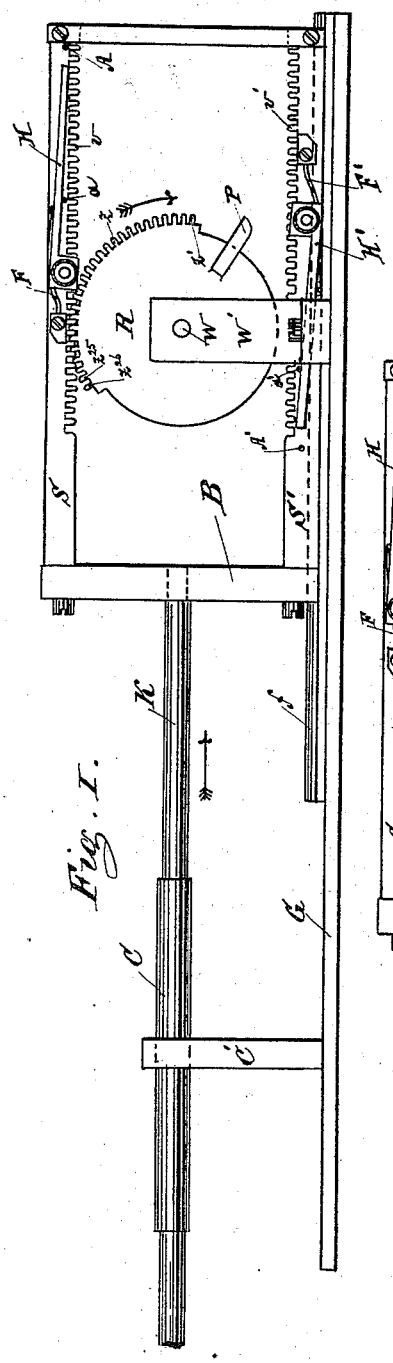

Fig. I.

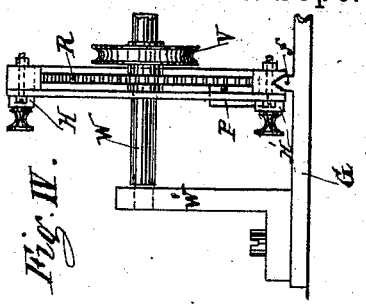

Fig. IV.

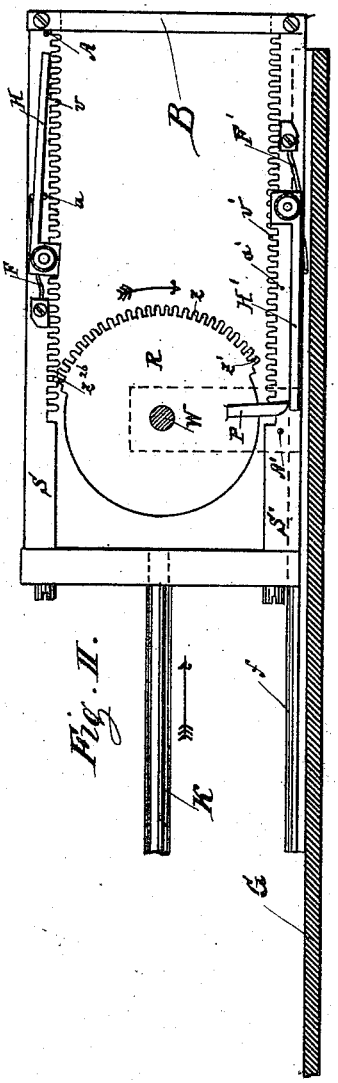

Fig. II.

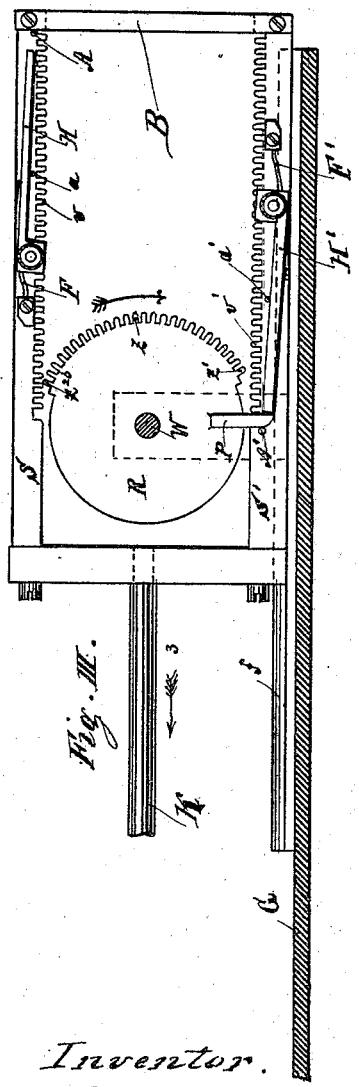

Fig. III.

Witnesses.

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UNITED STATES PATENT OFFICE.

EMIL BOETTCHER, OF LEIPSIC, GERMANY.

DEVICE FOR CONVERTING MOTION.

SPECIFICATION forming part of Letters Patent No. 305,503, dated September 23, 1884.

Application filed March 3, 1884. (No model.)

To all whom it may concern:

Be it known that I, EMIL BOETTCHER, a citizen of Germany, and a resident of Leipsic, in Germany, have invented a new and useful Improvement in Devices for Converting Rectilinear into Rotary Motion, of which the following is a specification.

In the accompanying drawings, Figures I, II, and III represent side views of the mechanism in different positions, and Fig. IV is an end view of the same with the bearing on one side removed.

Similar letters represent similar parts in all the figures.

K is the reciprocating rod, receiving a rectilinear reciprocating motion, and guided in a cylinder or tube, C, in the frame C'. To this rod K a rectangular frame, B, is attached, the lower part of which is guided on suitable ways, *f*, attached to the bed-plate G. The upper and lower rods, S S', of this frame B are provided on their inner sides with suitable teeth, *v v'*. Between the rods S S' a wheel, R, attached to a shaft, W, turning in suitable bearings, W', is arranged. This wheel R is provided with teeth Z on part of its circumference, as well as with a long projecting tooth, P, on one side.

H H' are levers turning on suitable centers attached to the rods S S', acted upon by springs F F', forcing said levers inward until stopped by the small pins *a a'*.

V is a pulley placed on the shaft W, to transfer the rotary motion.

The operation is as follows: The rod K, moving in the direction indicated by the arrows in Figs. I and II, causes the wheel R to turn in the direction indicated by its arrow, in consequence of its teeth Z engaging with the teeth *v* and the upper rod, S. Before the last teeth, Z^{25} Z^{26}, leave the teeth *v* in said rod S, the projecting tooth P on the wheel R comes in contact with the lever H' on the lower rod, S', moving the same outward against the action of its spring F'. When the last tooth, Z^{26}, has left the teeth in the rod S, the projecting tooth P of the wheel R has passed the end of the lever H', which is then moved upward again by the action of its spring F', and at the same time said tooth P comes in contact with a projecting pin, (H') attached to this lower lever, S', and is therefore locked between this pin A' and the end of the lever H'. (See Fig. III.) The rod K, together with the frame B, moves then in the contrary direction, indicated by its arrow 3, when the action of the end of the lever H' against the tooth P continues the rotary motion of the wheel R until the first lower tooth, Z', comes in connection with the teeth *v'* on the lower rod, S', and thus continues the rotation of this wheel R. The projecting pin A' will, during the beginning of this latter movement, gradually move around the end of the tooth P. When the rod K comes to the end of that back motion, the tooth Z^{26} will have left the tooth *v'* in the rod S', the tooth P will have acted upon the lever H on the upper rod, S, and pass between the end of said lever H and the pin A, attached to said rod S, as soon as the motion of the rod K changes, when the tooth Z' of the wheel R will come again into gear with the teeth *v* on the upper rod, S, and the rotation of the wheel R be continued.

It will readily be understood that this arrangement will operate likewise to convert a rotary motion given to the shaft W into a rectilinear motion to the rod K.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of a reciprocating frame, B, with teeth *v v'* on its upper and lower rods, S S', the wheel R, with teeth Z' Z Z^{26}, &c., on part of its circumference, and projecting tooth P; and the levers H H', with suitable springs, F F', and the projecting pins A A', attached to the rods S S', arranged to operate in the manner and for the purpose substantially as specified.

EMIL BOETTCHER.

Witnesses:
OSWALD SCHMIDT,
HERMANN NAUNDORF.