No. 791,193. PATENTED MAY 30, 1905.

O. HEER.

MACHINE FOR STRAIGHTENING TUBES, SHAFTS, BARS, OR THE LIKE.

APPLICATION FILED JUNE 21, 1904.

Fig. 1.

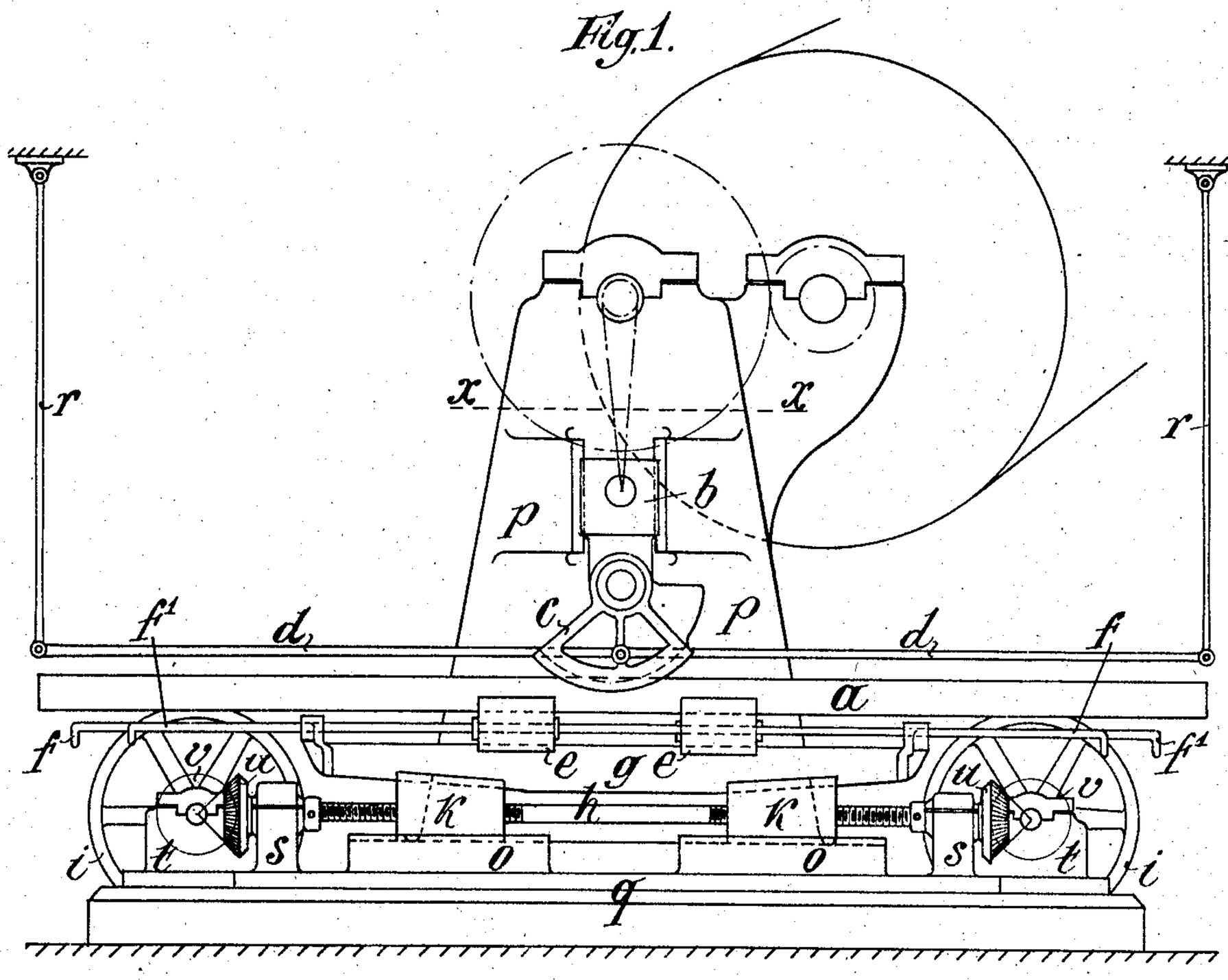
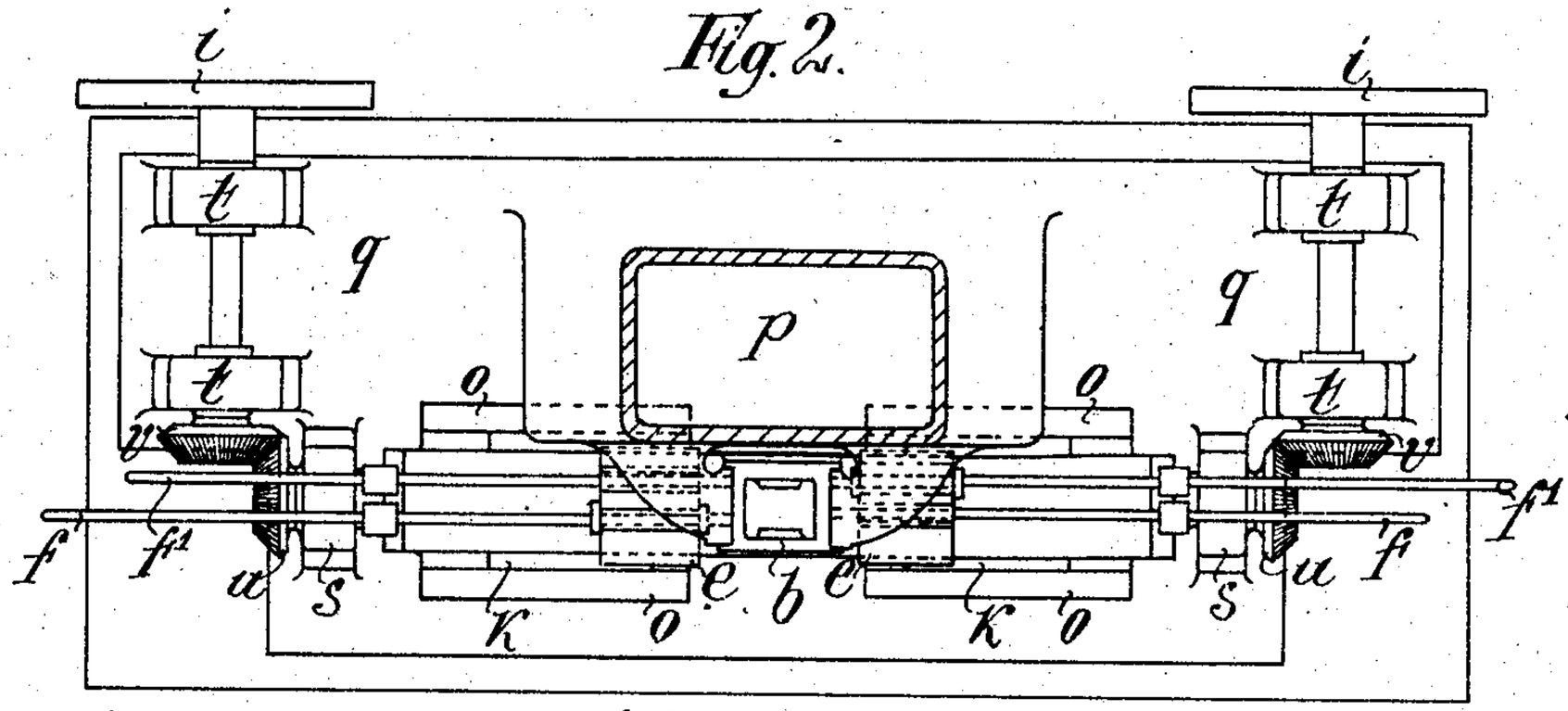


Fig. 2.



Witnesses

H. M. Kuehne

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Fig. 3.

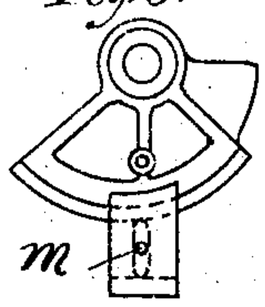
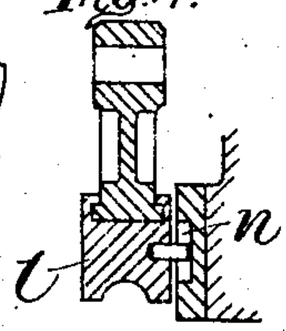


Fig. 4.



Inventor

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No. 791,193. Patented May 30, 1905.

UNITED STATES PATENT OFFICE.

OTTO HEER, OF DÜSSELDORF, GERMANY.

MACHINE FOR STRAIGHTENING TUBES, SHAFTS, BARS, OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 791,193, dated May 30, 1905.

Application filed June 21, 1904. Serial No. 213,553.

To all whom it may concern:

Be it known that I, OTTO HEER, a subject of the German Emperor, residing at 45 Graf Adolfstrasse, Düsseldorf, Germany, have invented new and useful Improvements in Machines for Straightening Tubes, Shafts, Bars, or the Like, of which the following is a specification.

This invention relates to a machine for straightening tubes, shafts, bars, and the like, in which all adjusting movements and changes of position becoming necessary during the working operation, together with the manipulation of the object to be straightened, can be carried out from two opposite points by one single workman.

The machine chiefly comprises an eccentric press, in which a die, moving up and down in a vertical direction at a considerable speed, produces with variable force the desired effect on the blank, which may be rotated by hand or otherwise, and moves longitudinally beneath the surface of the die in bearings on two blocks.

Referring to the accompanying drawings, Figure 1 is a front elevation of the straightening-machine. Fig. 2 is a cross-section on line *x x* and a plan of the machine, while Figs. 3 and 4 are front elevation and section, respectively, of one of the illustrated modified constructions for varying the amount of power or force exerted on the blank.

Similar letters refer to similar parts throughout the several views.

The cross-head *b*, which extends between two vertical guides of the standard *p*, is moved rapidly up and down by an eccentric disk and carries on its lower end an oscillating segment-die *c*, whose circumferential surface is eccentric to that of its horizontal suspension-pivot. Two draw-rods *d*, engaging laterally against this segment-die, are led to the right and left in the direction of the blank *a* to be straightened and are suspended over the ends of the same to rods *r*, which are oscillatorily fixed against the ceiling of the engine-room. The blank bears in a known manner upon two blocks *e*, which are located upon a support *g*, along the upper path of which the blocks can be moved separately with the aid of two draw-rods *f f'*, parallel to the said support and supported at both ends of the same. The support *g* of the blocks *e*, which is provided with wedge-shaped tapering ends, is supported by two likewise wedge-shaped blocks *k*, which can be moved on the guides *o* simultaneously and in opposite directions with the aid of a spindle *h*, fitted through their centers and provided with right and left handed screw-threads, respectively. According to requirement, the support and blank may be raised or lowered. The rotation of the spindle *h*, supported at both ends by pedestals *s*, can be effected from both sides by means of adjusted hand-wheels *i*, whose rotary movement is transmitted by conical wheels *u v* to the spindle. The bearings *t* of the axles of the hand-wheel, the bearings of the spindle *h*, and the guides *o* of the wedge-pieces *k* are all located on the base-plate *q* of the standard *p* of the machine.

In the above-described form of construction the segment-die *c* acts directly on the blank at each stroke of the cross-head *b*. The extent of this action can be regulated by the oscillating movement of the segment-piece to be effected with the aid of the rods *d* and can be made adapted to the actual state of the blank. The periphery of the segment-die which bears upon the blank must, however, in this case conform as far as possible to the area or cross-section of the blank to be straightened. If the frequently-necessary interchanges of the segment-dies are to be obviated, the arrangement as shown in Figs. 3 and 4 must be adopted. In this case the segment-die does not operate directly on the blank; but a block *l*, with a pin *m* on its rear side, engages in a vertical groove *n* of the standard *p* and embraces the rim of the segment-die in such a manner that it must participate in the upward and downward movements of the latter. This block can be adjusted at different levels owing to the oscillatory movement of the segment. The form of the lower side of this block corresponds to the area or cross-section

of the blank to be treated each time, so that when changing the latter it is only necessary to insert a new block.

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

1. A machine for straightening bars, shafts and the like, comprising a vertically-reciprocating die with means for operating it, supporting-blocks for the bar with means for moving them toward and from each other, a single carrier for said blocks, and means for moving both ends of said carrier vertically to raise or lower the blocks simultaneously, substantially as described.

2. In combination, a vertically-reciprocating die with means for operating it, a pair of sustaining-blocks with means for moving them toward and from each other, a carrier for supporting said blocks having inclines on its under side, and wedges beneath said inclines with means for operating them, substantially as described.

3. In combination, a vertically-reciprocating head, a pressing-die eccentrically pivoted thereto, means for swinging said die on its pivot, a pair of sustaining-blocks with means for moving them toward and from each other, a carrier for supporting said blocks having inclines on its under side, and wedges beneath said inclines with means for operating them, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OTTO HEER.

Witnesses:
PETER RIEBER,
WILLIAM ESSENWEIN.