

M. PETERS.  
 ROLLING MILL FOR PRODUCING TUBES.  
 APPLICATION FILED APR. 29, 1909.

954,880.

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Fig. 1

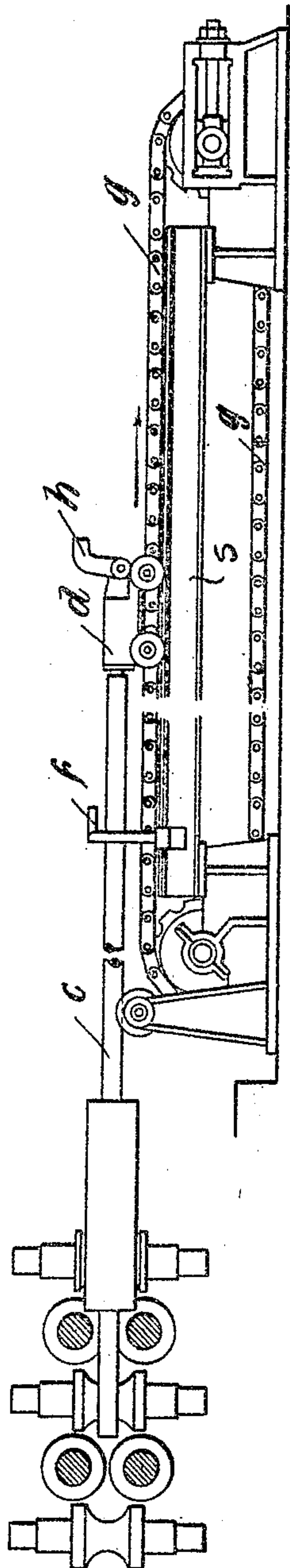
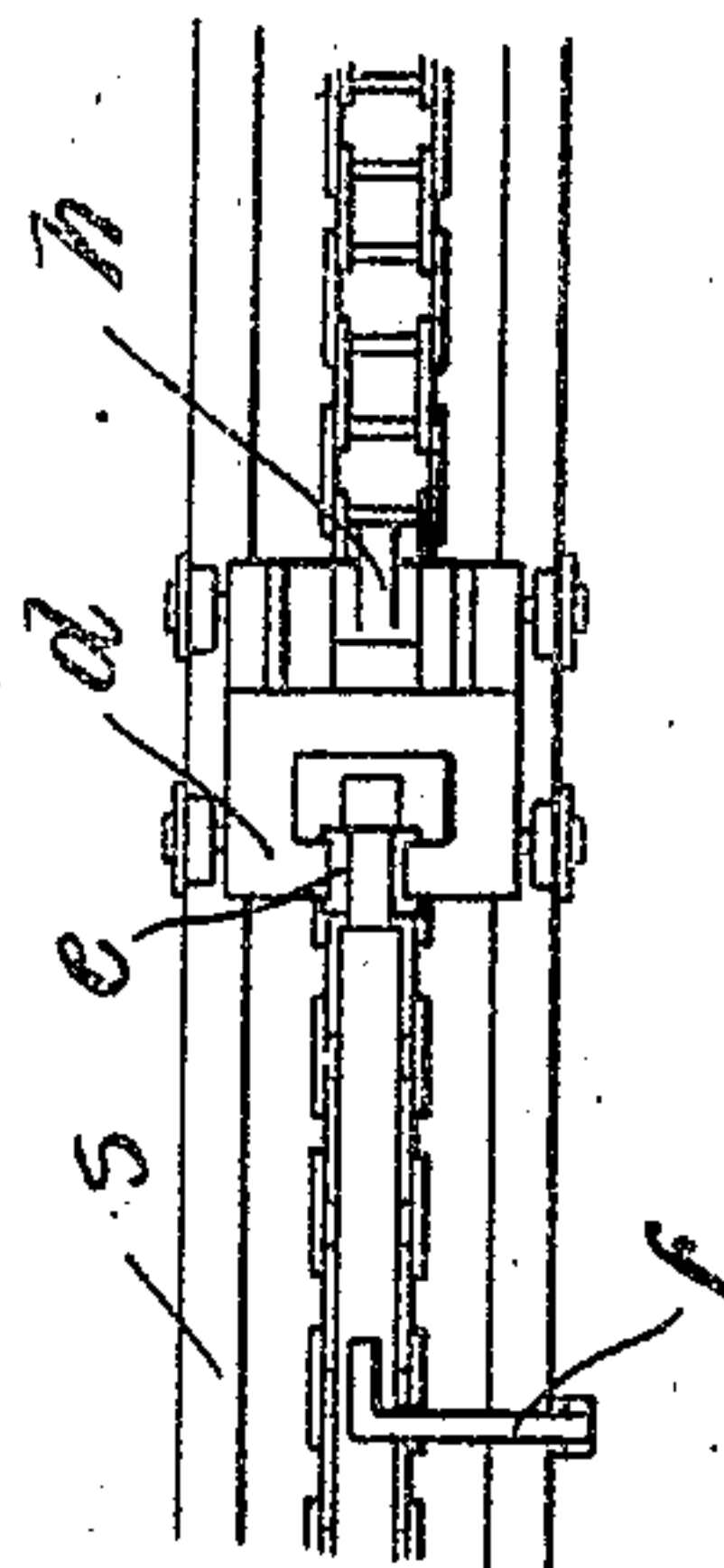


Fig. 2



Witnesses:  
 Karl Ammannig.  
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Inventor:  
 Mathias Peters

# UNITED STATES PATENT OFFICE.

MATHIAS PETERS, OF BENRATH, NEAR DUSSELDORF, GERMANY.

ROLLING-MILL FOR PRODUCING TUBES.

954,880.

Specification of Letters Patent. Patented Apr. 12, 1910.

Application filed April 29, 1909. Serial No. 492,858.

*To all whom it may concern:*

Be it known that I, MATHIAS PETERS, mechanical engineer, subject of the German Emperor, and residing at Benrath, near Dusseldorf, Germany, have invented a certain new and useful Rolling-Mill for Producing Tubes, of which the following is a specification.

The invention relates to rolling mills for producing seamless tubes from a hollow ingot or blank; and it has for its object to extract the mandrel employed in such mills while the work-piece still moves through the rolls, whereby the time required for the production of the tube will be materially lessened, and a saving of space and expense effected.

In rolling devices for rolling tubes over mandrels, in which several pairs of rolls inclosing an oval-shaped profile, are arranged behind each other, the extracting of the mandrel from the finished tube has hitherto been usually accomplished in a separate operation by means of a suitable device arranged at the back of the rolling mill.

The present invention relates to a device by means of which the mandrel is extracted, while the work-piece still moves through the rolls. This extraction is so arranged that the extracting of the mandrel is begun when the outer end of the work-piece, or the tube, has left the first pair of the stretching rolls and moves between the last pair of the equalizing rolls, which latter exercise a less pressure upon the same than the first pair of rolls, and between which therefore the mandrel will be less firmly held. The operation of extracting the mandrel will be concluded nearly at the same time or a little later than when the ready rolled tube leaves the last pair of rolls. In this manner the time required for the production of the tube will be materially lessened, so that the tube will arrive at the draw-bench, where the oval-section-shape will be converted into the exactly circular shape, in a still highly heated condition. A saving of space is also attained, as well as a saving of working expenses, as the plant can easily be arranged in such a way that the device works automatically.

The nature of my invention will be best understood in connection with the accompanying drawings, in which—

Figure 1 is an elevation of the rolling

mill, the work-piece and mandrel being within the rolls. Fig. 2 is a fragmentary plan view of Fig. 1.

Similar characters of reference designate corresponding parts throughout the several views.

This new device is characterized by the fact that the outer-end of the mandrel is attached to a truck running on rails in the direction of the motion of the work-piece; and the truck being coupled at a suitable moment to a link chain or the like, running at a corresponding speed in the opposite direction to the motion of the work-piece.

Referring now to the drawing, *c* designates a mandrel which moves—being taken along by the work-piece—in the direction of the said work-piece, and also draws a truck *d* running on rails *s*, said mandrel being coupled to the truck by a gap-clutch *e* which firmly grips the outer end of the said mandrel. Between the two rails *s* a link chain *g*, running over two rollers, moves continually in a direction opposite to the motion of the work-piece. To the truck *d* a lever *h* is attached, the end of which is so formed that during the descent of the lever it hooks itself firmly to a pivot of the link chain. In a suitable position a stop *f* is attached to the rails *s*, by which the lever *h* is automatically turned down, thereby coupling the truck *d* to the chain *g*, causing the same to extract the mandrel *c* from the tube. The coupling of the truck to the chain is preferably done after the work-piece has left the first two or three rolls. If, when rolling tubes of great lengths, it is not possible to entirely extract the mandrel before the outer-end of the rolled tube has passed through the last pair of rolls the extraction of the mandrel out of the finished tube may be completed in known manner by a suitable hold-fast and stripping-off device (not shown), and provided at a suitable distance near the rolling mill. The link chain can either be moved by the same driving gear by which the rolls are driven; or, by means of any special driving-power, which only begins working when the lever *h* comes into contact with the stop *f*.

In addition to the link chain *g*, a second chain may be provided, moving in the direction of the movement of the working-piece, in such a way that by coupling the truck to this chain the mandrel is forced to move with less speed than the average



speed of the work-piece, for instance only with the speed with which the work-piece passes through the first pair of rolls, as disclosed in my co-pending application Serial 5 #492,859. In this manner it is possible to roll tubes of great length by means of comparatively short mandrels.

I claim:—

10 1. In a rolling mill for forming seamless tubes from a hollow ingot or blank: a series of rolls; a mandrel adapted to pass into said series of rolls with said hollow ingot; movable means supporting the outer end of said mandrel; driving means operating in a 15 direction opposed to the normal movement of the mandrel through the rolls; and means to couple said movable means to said driving means.

20 2. In a rolling mill for forming seamless tubes from a hollow ingot or blank: a series of rolls; a mandrel adapted to pass into said series of rolls with said hollow ingot; movable means supporting the outer end of said mandrel; driving means operating in a 25 direction opposed to the normal movement

of the mandrel through the rolls; and means to couple said movable means to said driving means when the mandrel has reached a predetermined position relative to the rolls.

3. In a rolling mill for forming seamless 30 tubes from a hollow ingot or blank: a series of rolls; a mandrel adapted to pass into the said series of rolls with said hollow ingot; a truck supporting the outer end of said mandrel, and rails upon which said truck 35 is movable; an endless chain between the said rails, and means to drive the same in a direction opposed to the normal movement of the mandrel through the rolls; means to couple said truck to said chain; and a stop 40 to engage said coupling means to couple the truck to the said chain at a predetermined position.

In testimony whereof I have signed my name to the specification in the presence of 45 two subscribing witnesses.

MATHIAS PETERS. [L.S.]

Witnesses:

OTTO KÖNIG,  
C. J. WRIGHT.