

No. 691,540.

Patented Jan. 21, 1902.

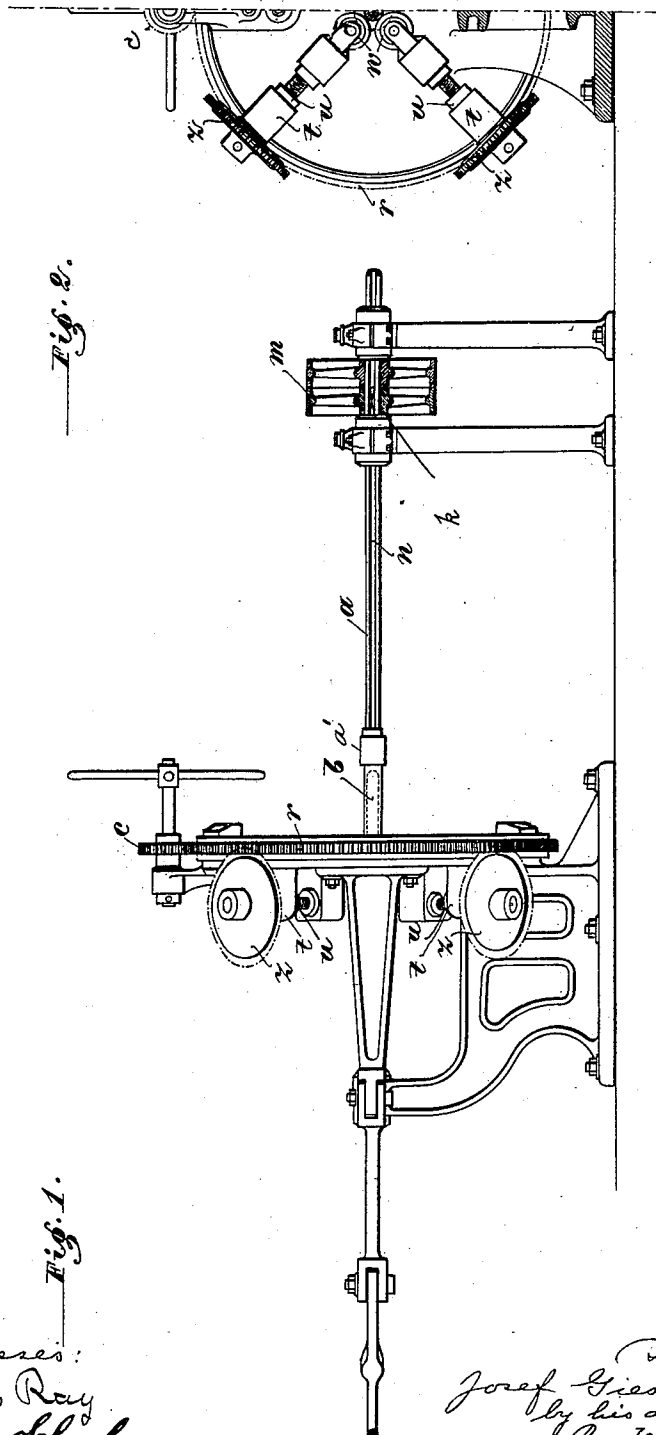
J. GIESHOIDT.

APPARATUS FOR ROLLING SOLID OR HOLLOW BODIES.

(Application filed Jan. 9, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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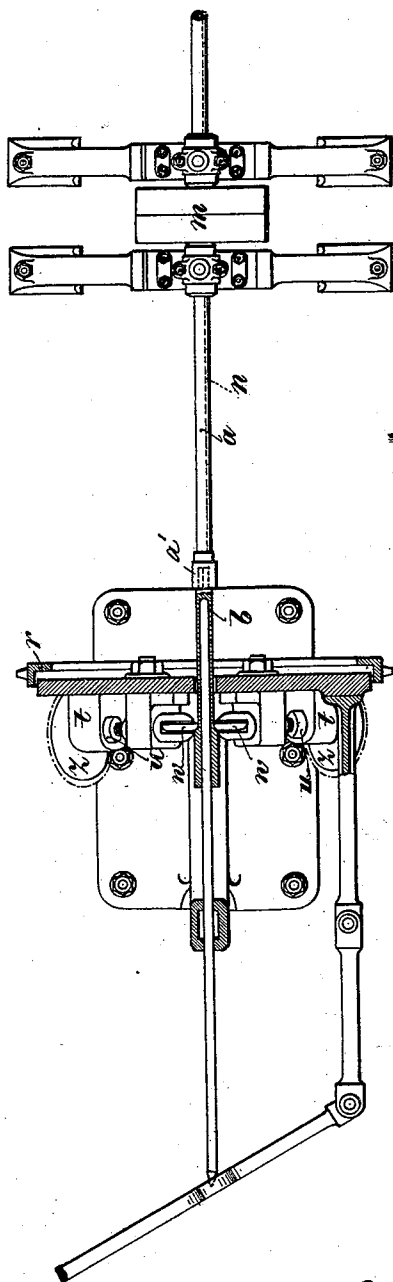


Fig. 3.

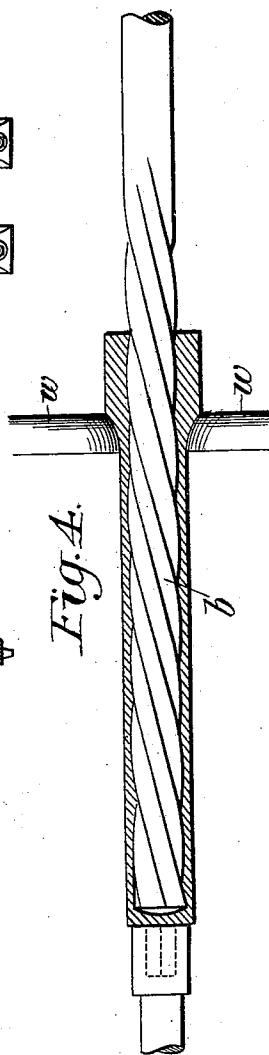


Fig. 4.

Witnesses
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3 Sheets—Sheet 3.

Fig. 5.

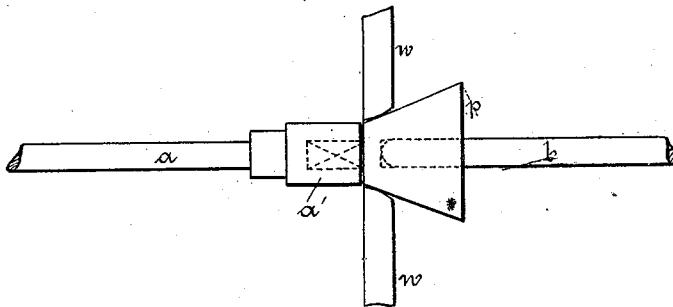


Fig. 6.

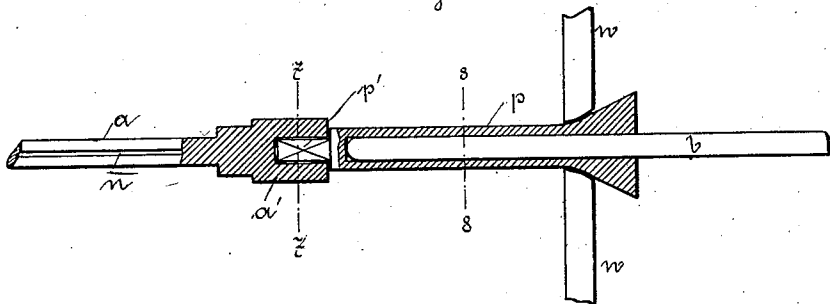


Fig. 7.

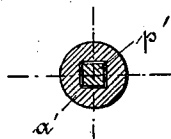
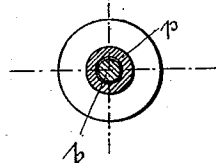


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOSEF GIESHOIDT, OF DUSSELDORF, GERMANY.

APPARATUS FOR ROLLING SOLID OR HOLLOW BODIES.

SPECIFICATION forming part of Letters Patent No. 691,540, dated January 21, 1902.

Application filed January 9, 1900. Serial No. 819. (No model.)

To all whom it may concern:

Be it known that I, JOSEF GIESHOIDT, a citizen of Germany, and a resident of Dusseldorf, Germany, have invented certain new and useful Improvements in Apparatus for Rolling Solid or Hollow Bodies, of which the following is a specification.

In the apparatus for rolling solid and hollow bodies shown in the accompanying drawings, Figure 1 is a side elevation, Fig. 2 a sectional front elevation, and Fig. 3 a plan, of the improved arrangement. Fig. 4 is a detail of a corrugated mandrel adapted to form a spiral bore within the work-piece. Fig. 5 is a detail side view of the adjoining ends of the spindles; Fig. 6, a similar view, partly in section, showing the blank drawn. Fig. 7 is a cross-section on line 7 7, Fig. 5; and Fig. 8, a cross-section on line 8 8, Fig. 5.

The rollers are arranged in a direction at right angles to the longitudinal axis of the article being rolled. This article or "blank" is secured between two adjustable axially-aligned spindles, one of which, where it is proposed to roll hollow bodies, acts as a mandrel or core-piece. Either or both of the spindles *a* and *b* may be driven in any suitable manner. In the construction here shown, by way of example, one only of the spindles—namely, the spindle *a*, provided with a groove *n*—is driven from a pulley *m*, fitted with a wedge or key *k*, and so arranged as to admit of a sliding displacement of the said spindle. The spindle *a* is further provided opposite the spindle *b* with a socket *a'*, having a squared opening. Into this socket is adapted to fit a suitable projection *p'* of the blank *p*, so that the blank is rotated, as well as axially displaced, by the spindle. As shown in the drawings, four rollers *w* may form the rolling-mill, (though more or less than four may be employed, if preferred,) and they may be arranged in different planes according to requirements. Also the rollers may by means of suitable mechanism be moved farther apart or closer together, and their relative position to each other may be varied as required. The roller-carriers *t* in the arrangement here exemplified are provided with screw-threads fitting into screw-nuts *u*. They also carry

gear-wheels *z*, all of which engage with the wheel *r*, which receives motion from the wheel *c*, whose shaft is fitted with one or more crank or other handles. When this shaft is turned to the right or to the left, the rollers are thereby brought nearer to or farther away from each other, as the case may be.

The operation is as follows: To begin with, the rollers are moved apart and the blank is fitted with its projection *p'* into the socket *a'* of the spindle *a*. It is then set in rotary motion by means of a strap or the like, and the rollers are moved into contact with the blank. After this the blank is wholly or partly slid in between the rollers through an adequate movement being imparted to the spindle *b* or to the spindle *a* itself, whichever meets the case, and this adjustment of the parts is repeated while the rollers are being moved closer together as many times as may be necessary to give the blank the shape or configuration to which it is desired to roll it out.

Where it is intended to turn out hollow bodies, the blank is passed through between the transversely-set rollers until the material of which it consists comes to pass over or surround the spindle which is to serve as a core-piece, such blank being at intervals moved backward and forward, while the rollers are brought closer together.

Owing to the improved arrangement of this roller-mill the hollow space or bore traversing the body being rolled may receive any desired shape or outline, which in all cases will be identical with that of the core-piece or mandrel—viz., either cylindrical, as shown, or triangular, square, polygonal, helical, &c., Fig. 4. Indeed, it may be conical, if desired, or provided with an offset, so that one portion of the bore may become wider than the rest. The novel arrangement also permits articles of a conical external outline, or bodies having enlargements, beads, grooves, &c., around their outer surface, to be rolled, it being only necessary for these purposes correspondingly to adjust the relative position of the rollers.

If preferred, the roller-supporting frame may be adjusted during the rolling operation instead of the blank, as will be readily understood.

What I claim is—

In a rolling-mill, the combination of an axi-
ally-movable and rotatable spindle having a
squared socket adapted to hold the blank,
5 with a second spindle arranged opposite the
socket and in alinement with the first spin-
dle, and with a series of radially-adjustable
drawing-rollers, substantially as specified.

Signed by me at Dusseldorf, Germany, this
23d day of December, 1899.

JOSEF GIESHOIDT.

Witnesses:

WILLIAM ESSENWEIN,
P. LIEBER.