No. 747,583. PATENTED DEC. 22, 1903.

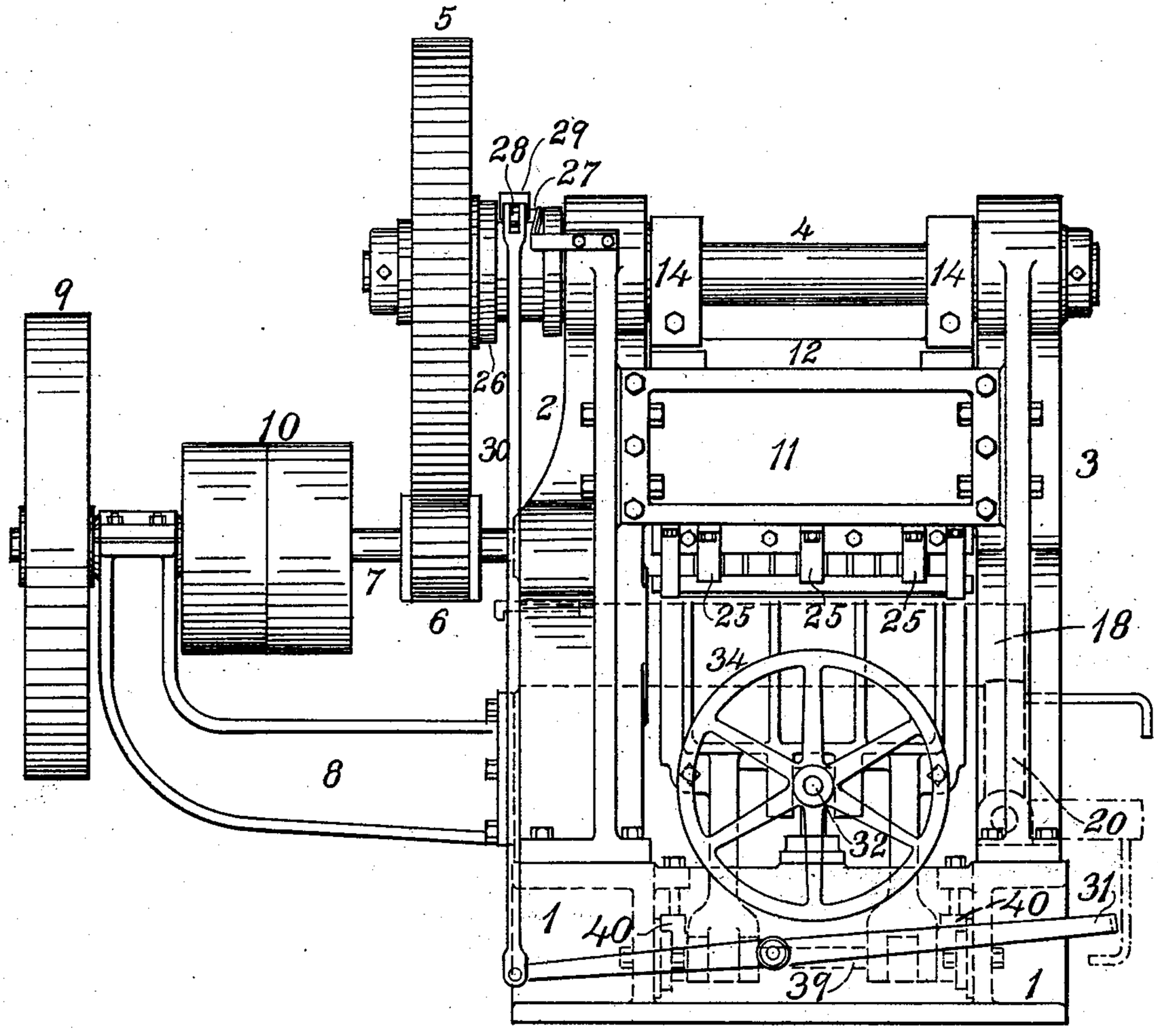
J. L. BOYLE & H. E. BRETT.

PROCESS OF PRODUCING CYLINDRICAL BODIES.

APPLICATION FILED SEPT. 13, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES.

Emmaeus R. Westcott

Frank H. Crowder

INVENTORS.

James L. Boyle

Henry E. Brett

BY Charles L. Rogers

ATTORNEY.

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.

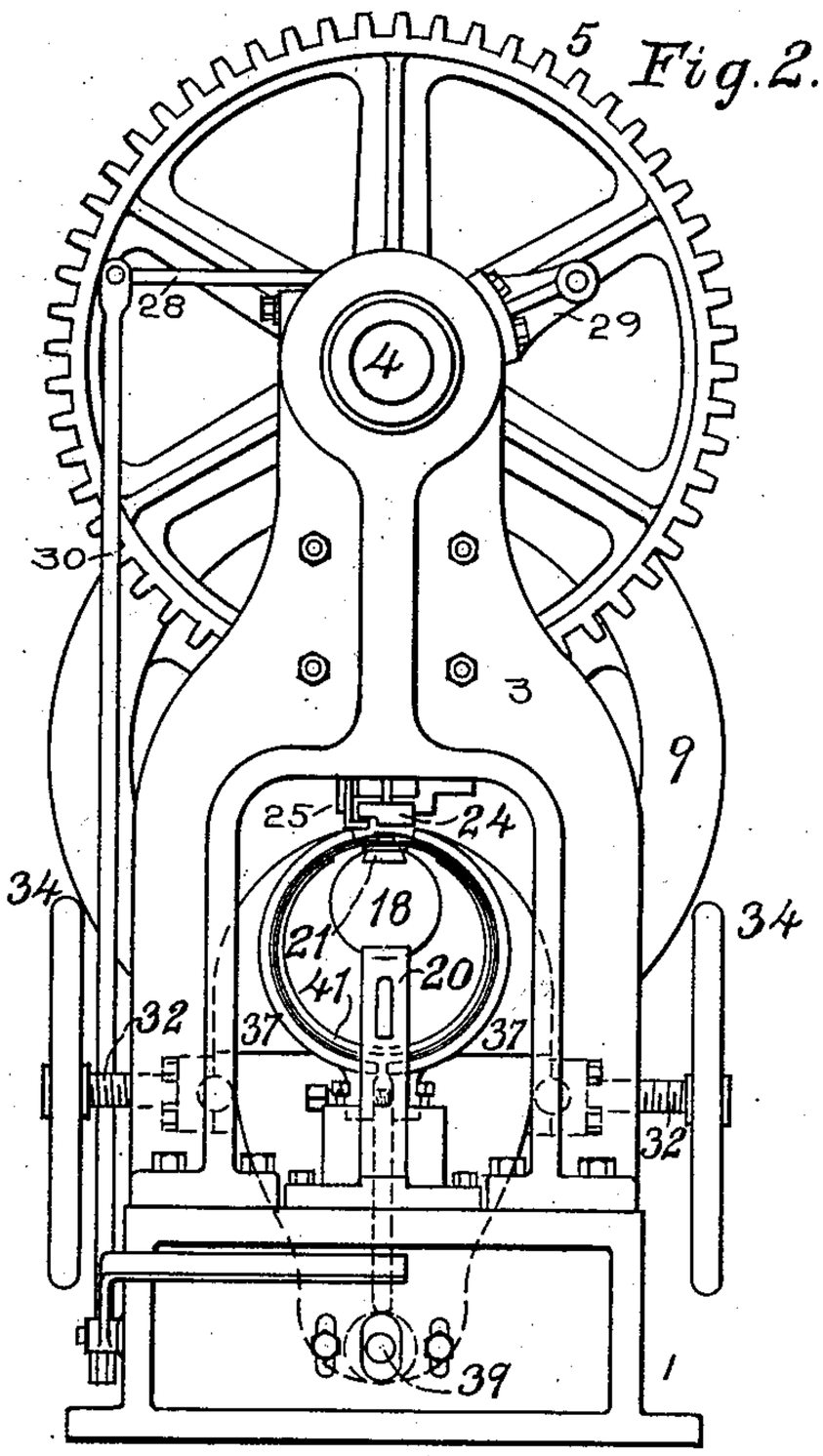


Fig. 3.

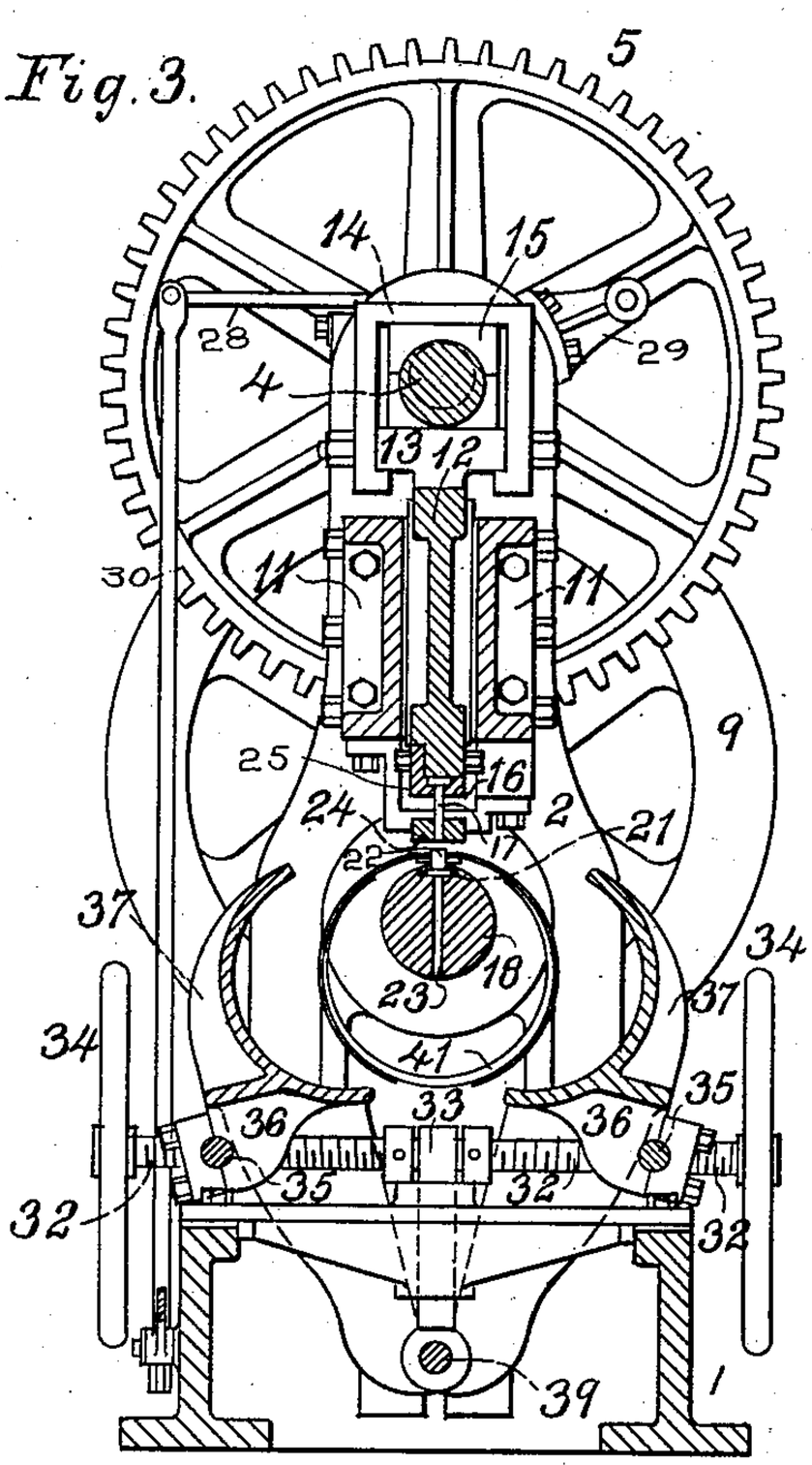


Fig. 4.

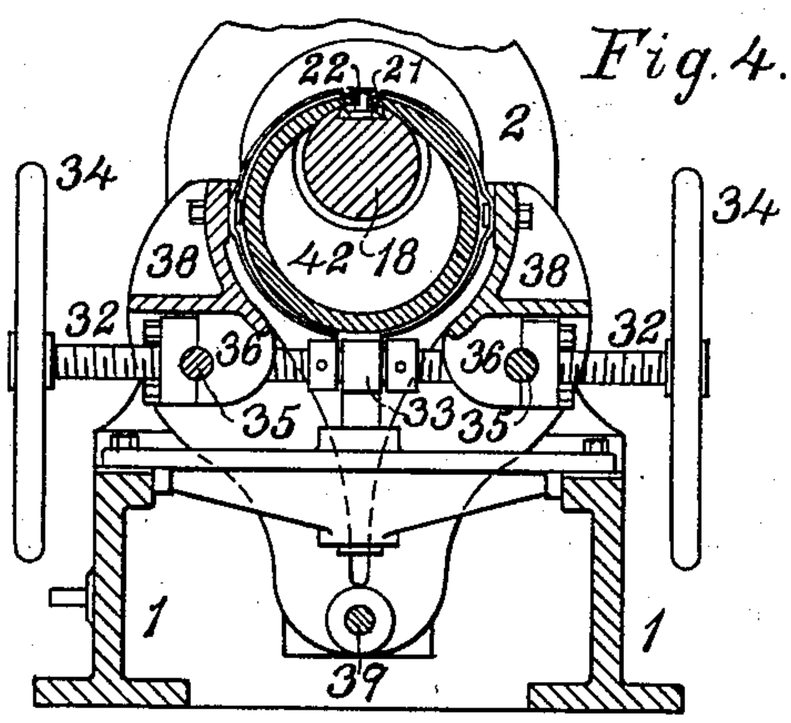
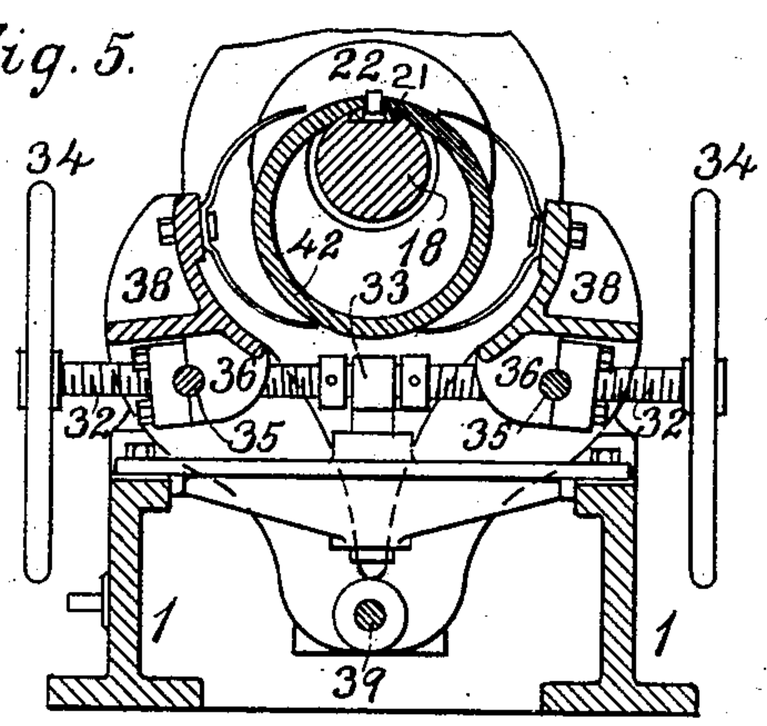


Fig. 5.



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APPLICATION FILED SEPT. 13, 1902.

NO MODEL. 3 SHEETS—SHEET 3.

Fig. 6.

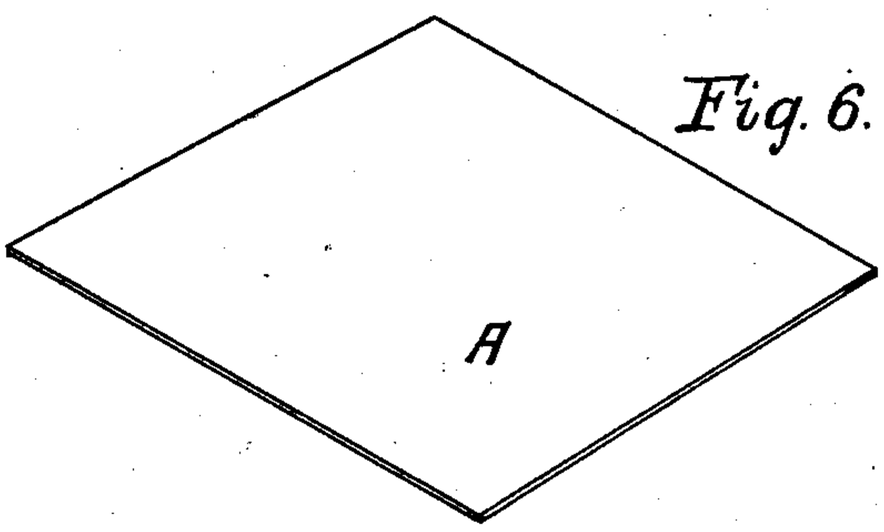


Fig. 7.

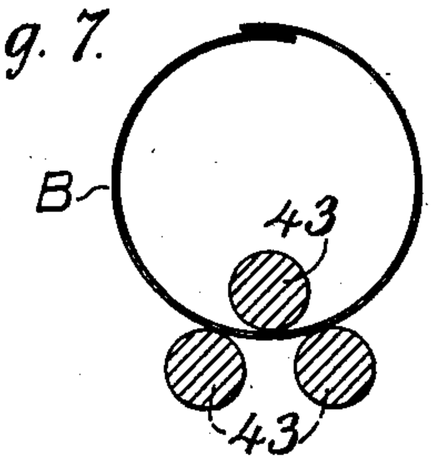


Fig. 8.

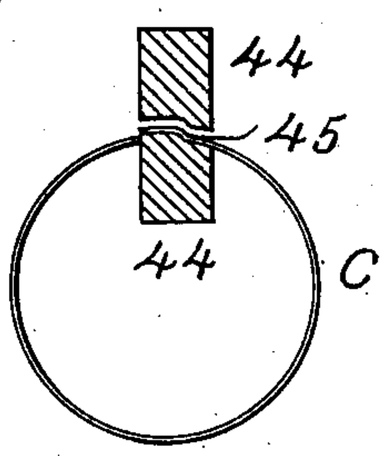


Fig. 9.

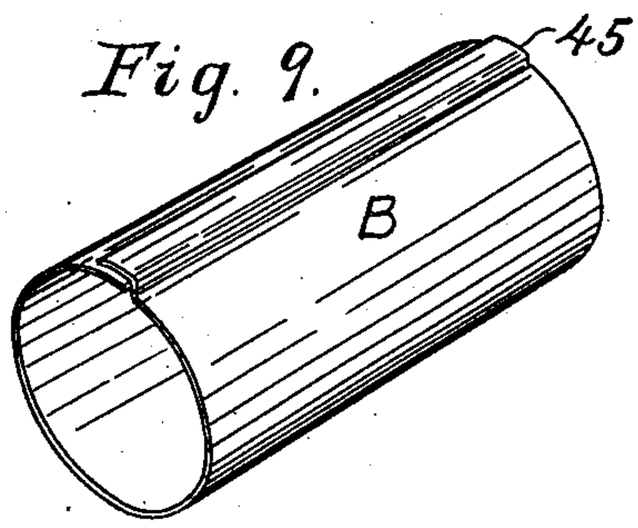


Fig. 10.

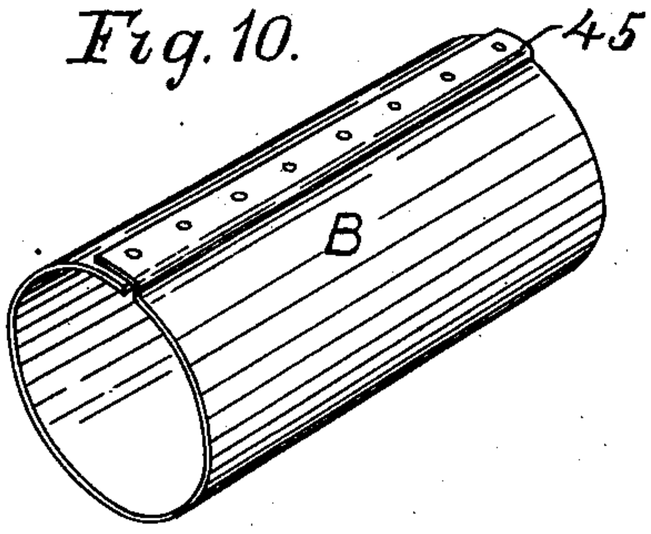
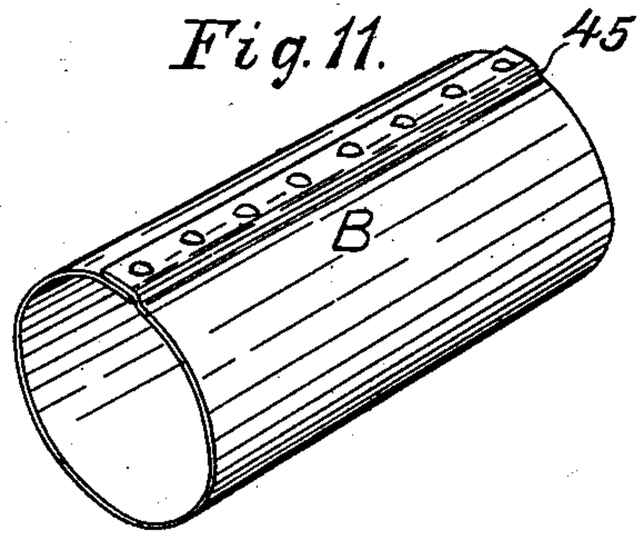


Fig. 11.



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ATTORNEY

No. 747,583. Patented December 22, 1903.

UNITED STATES PATENT OFFICE.

JAMES L. BOYLE AND HENRY E. BRETT, OF LOS ANGELES, CALIFORNIA;
SAID BRETT ASSIGNOR TO SAID BOYLE.

PROCESS OF PRODUCING CYLINDRICAL BODIES.

SPECIFICATION forming part of Letters Patent No. 747,583, dated December 22, 1903.

Application filed September 13, 1902. Serial No. 123,322. (No model.)

To all whom it may concern:

Be it known that we, JAMES L. BOYLE and HENRY E. BRETT, citizens of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Process of Producing Cylindrical Bodies, of which the following is a specification.

This invention relates to the process or method of producing cylindrical bodies, and particularly to producing sections or joints of well-casing; and some of the objects of the invention are to provide a process or method whereby sections or joints of well-casing can be produced rapidly and accurately.

Another object of this process or method is to produce sections or joints of well-casing extremely accurate as to size or diameter and whereby both edges of the section or joint can be perforated by one operation.

With these and other objects in view the invention consists in the process or method essentially as hereinafter more fully described in the following specification when taken in connection with the accompanying drawings, forming part of this application, wherein one form of machine is illustrated capable of carrying out the herein-described process or method of producing cylindrical bodies.

In the drawings, Figure 1 illustrates a side elevational view of a machine capable of carrying out this process or method. Fig. 2 is an end elevational view of the same when equipped for producing internal sections or joints. Fig. 3 is a cross-sectional view thereof, illustrating the mold in an open position. Fig. 4 is a partial sectional view of the machine when equipped for producing external sections or joints. Fig. 5 is a similar view showing the clamps open. Fig. 6 illustrates a blank from which a section or joint is produced. Fig. 7 indicates the blank being rolled into cylindrical form. Fig. 8 shows the blank being formed with an offset. Fig. 9 illustrates the product after having been treated as aforesaid. Fig. 10 is a perspective view of a blank after having been rolled provided with an offset and perforated, and Fig. 11 is a perspective view of the finished product.

In the construction of sections or joints of well-casing it has heretofore been necessary to punch each edge of the blank separately while in the flat to the approximate dimension, then roll the punched blank into cylindrical form, then tack up and fit the same by means of another joint, and finally rivet the edges thereof; but by reason of the foregoing step being done by hand and by reason of the sheet being rolled after having been punched it has been found practically impossible to obtain accuracy of dimension essential to a satisfactory product; but with this process or method the blank is first cut into the desired size, and then the cylinder is provided with a longitudinal offset, and the cylinder thus formed is placed in the machine and subjected to pressure throughout the entire surface thereof, whereupon the edges of both are punched by one and the same operation, and finally the edges are riveted and the finished product is produced.

In order to facilitate an understanding of this process or method, there will be illustrated one form of machine capable of carrying out the same, but which is merely typical.

Referring to the drawings, and particularly to Figs. 1 to 5 thereof, the reference character 1 designates a bed-plate of any suitable construction whereon are mounted housings 2 and 3, in the free end whereof is mounted an eccentric shaft 4, carrying a gear-wheel 5, which meshes with a pinion 6 on a shaft 7, journaled in the housing 2 and in an arm or bracket 8, said shaft carrying a fly-wheel 9 and band or pulley wheels 10, adapted to be driven by any suitable motive power.

Formed on the upper portion of the housings 2 and 3 are guide-plates 11, between which is mounted a cross-head 12, having T-shaped ends 13 to receive straps 14, inclosing sliding bearings 15, working on the eccentric shaft 4 to impart a reciprocating motion to the cross-head, and removably secured to the edge of the cross-head is a punch holder or plate 16, carrying punches 17, as shown.

Mounted in the housings 2 and 3 is a stake 18, constructed to be supported by a hinged block 20, and the stake 18 carries a die-plate 21, having dies 22, while below the dies the stake

is provided with transverse openings 23 for the passage of the punched-out material.

A perforated guide-plate 24 is mounted below the cross-head to insure the proper alinement of the punches, and stop brackets or hangers 25 receive and retain the edge of the joint or section in proper position to be punched.

The hub 26 of the gear-wheel 5 is provided with a spring-actuated clutch 27, operated by a clutch-lever 28, mounted in a bracket 29 and actuated by a link or pull-rod 30, actuated by a treadle or foot-lever 31 to start the machine.

A screw 32 is mounted in a movable post 33 and is operated by hand-wheels 34, and on said screw are traveling nuts having trunnions 35, engaging the ears or lugs 36 on the mold 37 and clamp 38, respectively, both of which are removably pivoted on a shaft 39, mounted in adjustable bearings 40 on the housings.

A spring pressure plate or device 41 is provided with openings to receive the dies and encircles the stake to press the cylinder or casing-section out against the mold at all points throughout the surface thereof, while the spring-clamps 38 force the cylinder or casing-section against the mandrel 42 in the formation of external joints or sections of well-casing.

Having briefly described one form of machine capable of carrying out this process or method of producing cylindrical bodies, the process or method of producing an internal section or joint of well casing or cylinder will now be explained.

After the blank has been cut to the desired size, as at A, Fig. 6, it is then passed between forming-rollers 43, Fig. 7, whereby the flat blank A is formed into a cylinder B, as shown in Fig. 7, whereupon the cylinder B is put into a press 44, Fig. 8, to form a longitudinal offset 45 therein, Fig. 9, and after the blank has been thus treated it is placed upon the pressure device 41 upon the stake 18, and the mold 37 is closed tightly upon the cylinder B, which is forced thereagainst thoughout its entire area by the peculiar action of the pressure device, and when in this position the machine is started by means of the clutch, and the punches descend upon both edges of the cylinder, thereby perforating said edges simultaneously in one operation. (See the perforated cylinder shown in Fig. 10, which is then riveted, forming the finished product shown in Fig. 11 of the drawings.)

The process of producing external cylinders or casing-sections is substantially similar to that hereinbefore described in connection with the formation of internal cylinders, except that the offset is formed upon the inside in the latter case, and the spring-clamps 38 force the cylinder or casing-section against the mandrel 43, while the punches perforate the edges of the cylinder.

By producing cylindrical bodies by this process or method a better article is produced and with greater rapidity and with absolute exactness as to size.

We claim—

1. The process of producing cylindrical bodies consisting in cutting the blank, forming the blank into a cylinder, producing an offset in the cylinder and simultaneously perforating both edges of the cylinder throughout the entire length of the series of punches.

2. The process of producing cylindrical bodies consisting in forming a cylinder, then pressing all parts of the cylinder against a sizing device and finally perforating both edges of the cylinder simultaneously throughout the entire length of the series of punches.

3. The process of producing cylindrical bodies consisting in forming a cylinder and then perforating both edges thereof simultaneously in one operation throughout the entire length of the series of punches.

4. The process of producing cylindrical bodies consisting in cutting a blank, then forming the blank into a cylinder, then producing an offset in the cylinder and finally perforating the edges thereof throughout the entire length of the series of punches.

5. The process of producing cylindrical bodies consisting in cutting a blank, then forming the blank into a cylinder, then producing an offset in the cylinder, forcing the cylinder against a sizing device and finally perforating the edges thereof throughout the entire length of the series of punches.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JAMES L. BOYLE.
HENRY E. BRETT.

Witnesses:
J. W. KEMP,
L. B. ALDERETE.