No. 862,641. PATENTED AUG. 6, 1907.

H. K. JONES.

PROCESS OF FORMING BOOT CALKS.

APPLICATION FILED JUNE 4, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

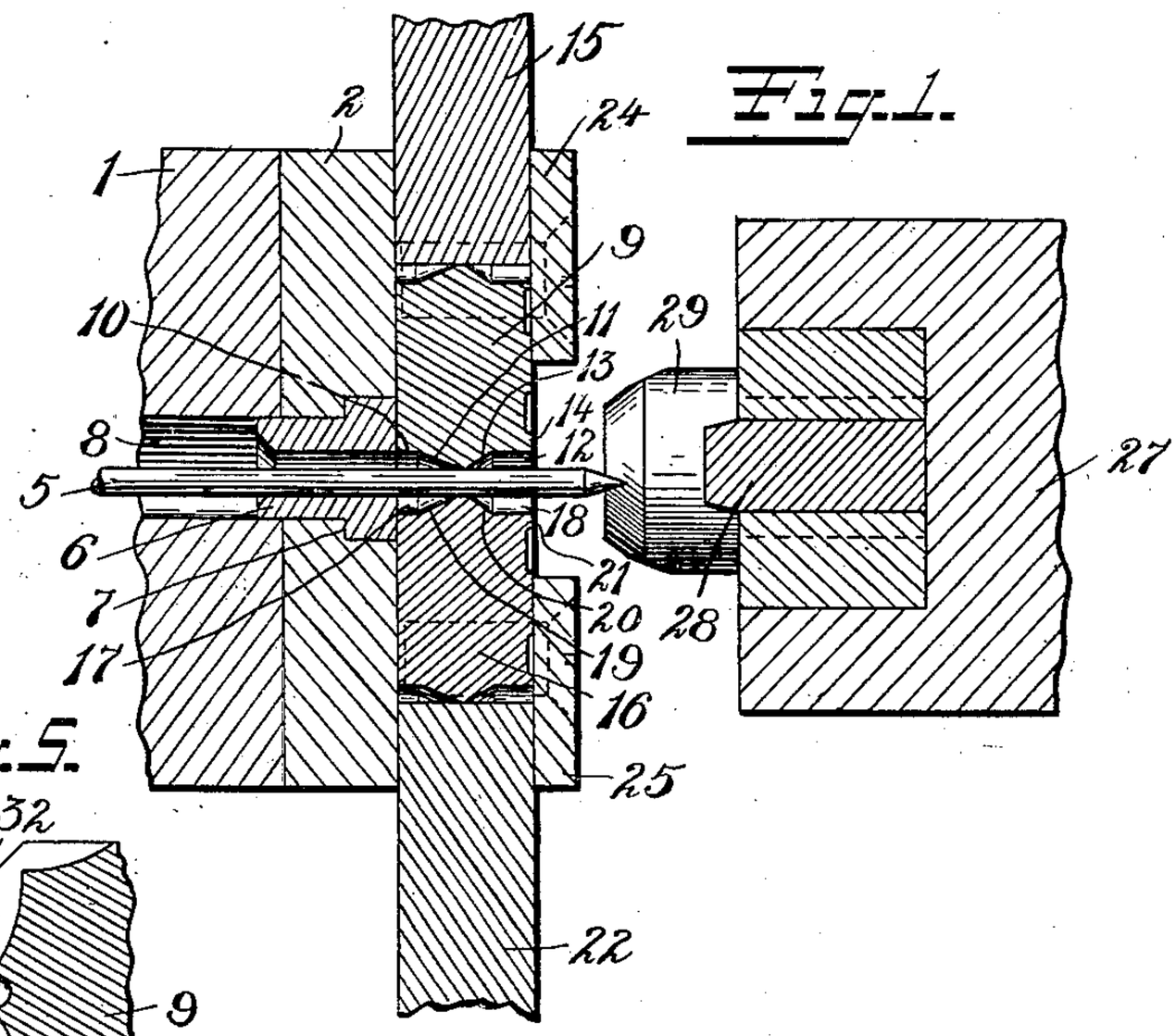

Fig. 5.

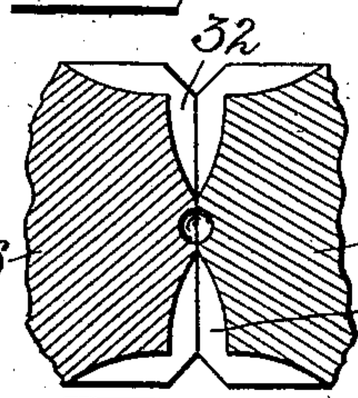

Fig. 6.

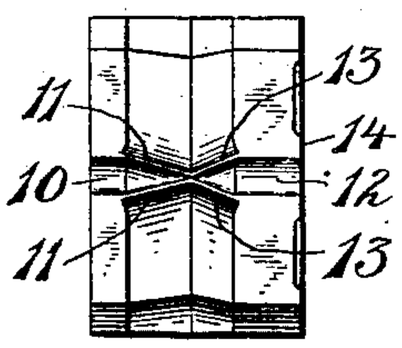

Fig. 2.

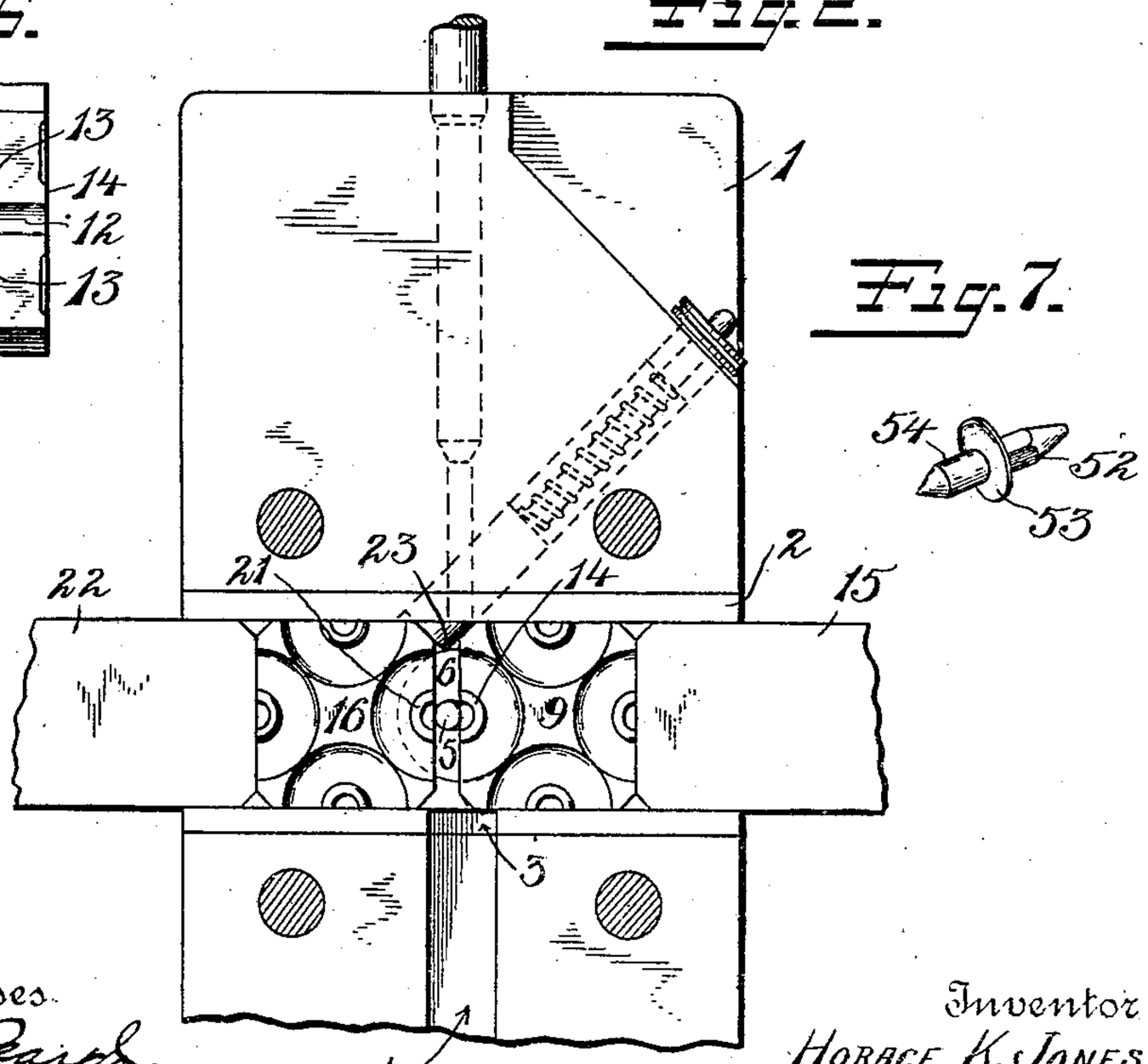

Fig. 7.

Witnesses.

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HORACE K. JONES

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2 SHEETS—SHEET 2.

Fig. 3.

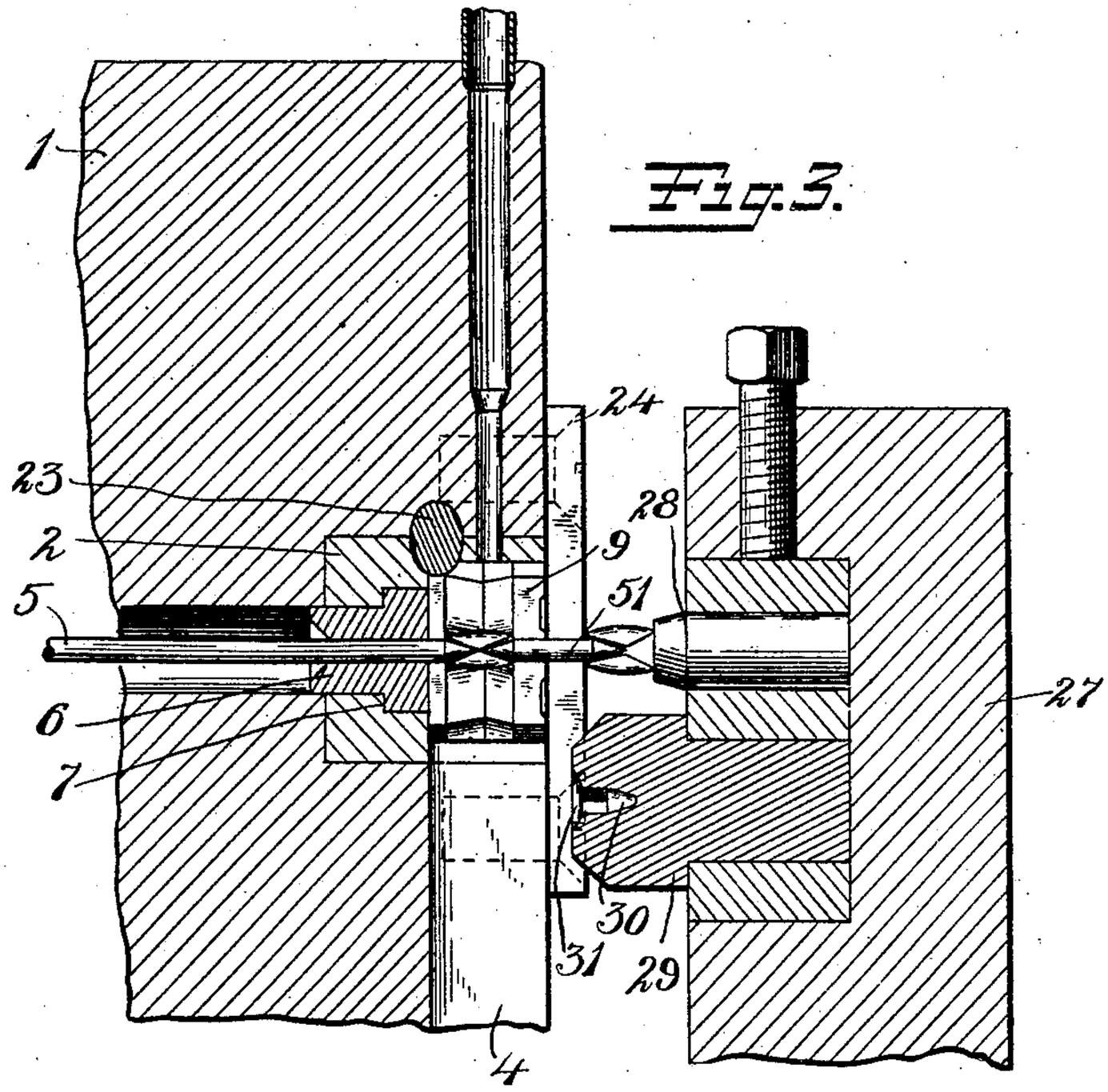
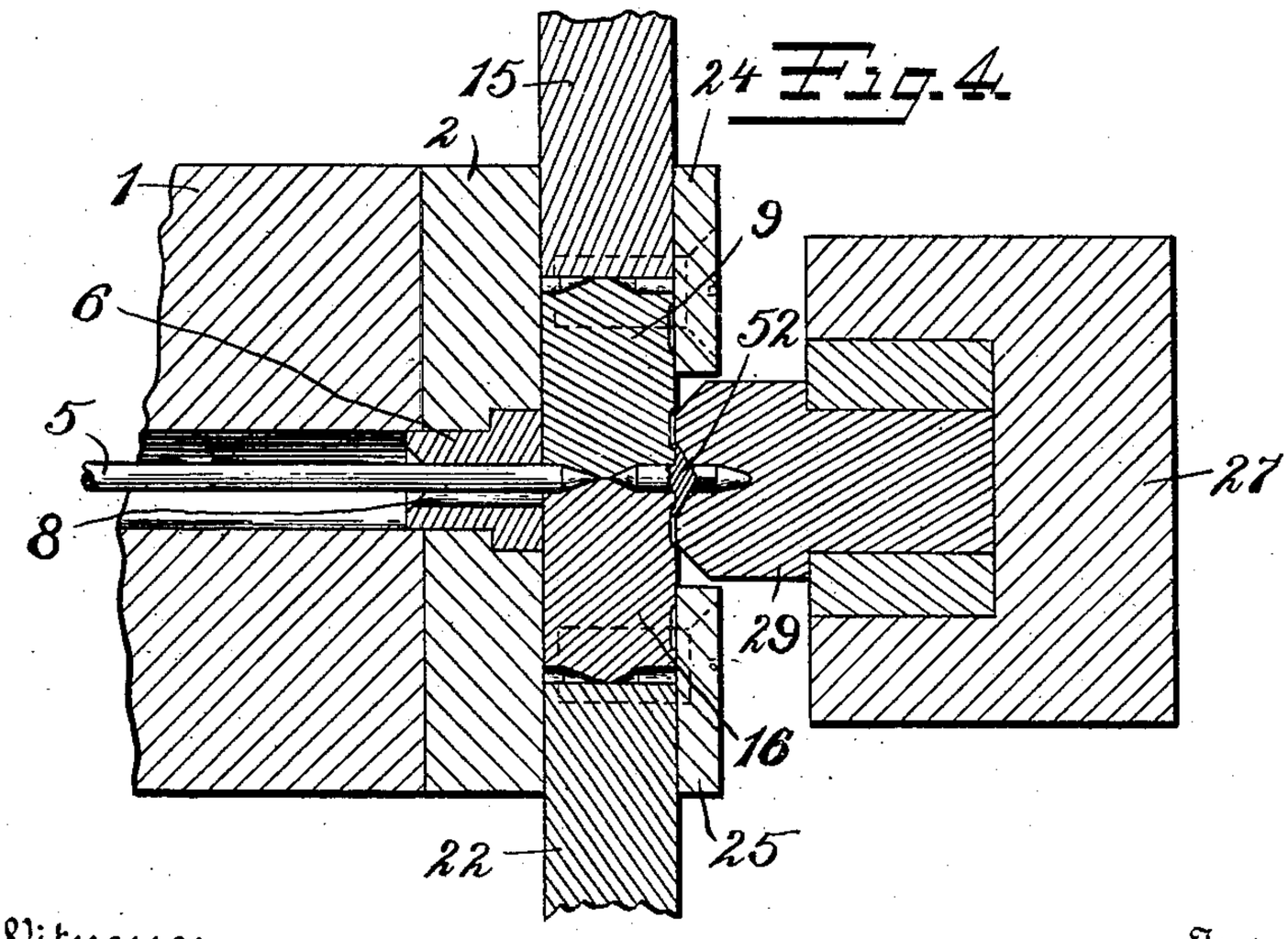


Fig. 4.



Witnesses

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HORACE K. JONES

By his Attorneys

UNITED STATES PATENT OFFICE.

HORACE K. JONES, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE CORBIN SCREW CORPORATION, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

PROCESS OF FORMING BOOT-CALKS.

No. 862,641. Specification of Letters Patent. Patented Aug. 6, 1907.

Original application filed January 29, 1904, Serial No. 191,088. Divided and this application filed June 4, 1906. Serial No. 319,977.

To all whom it may concern:

Be it known that I, HORACE K. JONES, a citizen of the United States, residing at New Britain, Connecticut, have invented certain new and useful Improvements in Processes of Forming Boot-Calks, Etc., of which the following is a full, clear, and exact description.

My invention relates to improvements in metal working and particularly a process for the construction of boot calks such as are used by lumbermen and others. The mechanism for carrying out the process is more fully described and claimed in my application No. 191,088, filed January 29, 1904, from which this application is a division.

The main object of the invention is the construction of a boot calk of the character herein shown automatically, so that the production may be economical and rapid and produce a uniform product.

The invention consists primarily in the formation by dies from wire or rod-like stock of a blank pointed on both ends, and upsetting part of the blank to form a shoulder while one end of the blank is held between the dies.

Sufficient understanding of the method of operation will be had from inspection and from the accompanying two sheets of drawings.

Figure 1 is a horizontal sectional view showing the dies and header in the position which they would occupy when separated after the pointing of the forward end of the stock, and the feeding of the stock forward through the length of one blank. Fig. 2 is an end elevation of the dies and supports in the position of Fig. 1. Fig. 3 is a vertical sectional view and side elevation showing the parts after the operation of severing a blank and just at the instant of removing chips on the forward end of the blank. Fig. 4 is a plan view and horizontal section showing the parts in the position after a calk has been completed. Fig. 5 is a fragmentary detail view on an enlarged scale showing the construction of the dies for tapering or pointing the ends of the blank. Fig. 6 is a view of the cutting and holding face of a die. Fig. 7 is a detail perspective view of a finished calk. The left hand end of the calk may be screw-threaded in any suitable manner if desired after its formation as herein set forth.

1 indicates a fragment of the frame of the machine. 2 is a guide having an opening 3 in the bottom directly above and in line with opening 4 in the frame so that chips formed between the dies may readily escape. The stock 5 in the preferred form of my invention is of round wire and suitable mechanism is provided for feeding it longitudinally step by step. The anvil 6 has a shoulder 7 to support it against longitudinal movement and a radially elongated passage 8 for the stock, the total width of the passage being slightly more than one and one half times the diameter of the stock. The die 9 is supported in the guide 2 and has a semi-cylindrical holding portion 10 and cutting edges 11—11 converging as the elements of a cone. The die also has a holding portion 12 and cutting edges 13—13 converging oppositely to the edges 11—11. The rear end of the die rests against the guide 2 and the anvil 6. The outer end of the die is provided with a semi-circular raised boss 14.

15 is a back support for the die.

16 is a die similar to die 9 mounted so as to slide in the guide 2. This die has holding portions 17—18 and cutting edges 19—20 corresponding to the holding portions 10 and 12 and the cutting edges 11 and 13 of die 9. Die 16 also has a bearing at the rear end against the guide and anvil and a semi-circular raised boss 21 on the outer end corresponding to boss 14 on die 9. The die bar 22 has a reciprocating movement in the guide 2, for the purpose of forcing the die 16 toward the die 9. 23 is a spring-pressed bar for throwing the movable die 16 away from the die 9. The dies are held in their proper positions by the face plates 24—25. The dies as shown are preferably provided with correspondingly operative faces on each of the four sides so that a new cutting or operative face may be easily substituted for the old when necessary.

27 is a movable carrier or header supporting the hammer 28 and the molder 29. Suitable mechanism is provided for operating the header at the proper times. The molder has a recess or cavity with a pointed inner end 30 and a dished or saucer-like enlargement 31 which corresponds to but is slightly larger than the boss formed by the semi-circular portions 14 and 21 of the dies combined. The calk is formed entirely from the stock 5.

51 indicates a double-ended or pointed blank formed in one of the intermediate stages of the process.

52 indicates the final calk having the collar 53.

The operation is as follows: The parts of the mechanism being in the positions shown in Figs. 1 and 2 the stock 5 is fed forward for the first preliminary operation until the front end projects beyond the cutting center of the dies and preferably substantially flush with the outer ends of the dies. The die bar 22 is then operated to force the die 16 against the stock and to force the stock against the stationary die 9. As the dies are brought relatively toward each other the front end of the stock is pointed. The die-bar 22 is then retracted and the die 16 moved back by the action of the release bar 23. The stock is then fed forward the proper distance to the position shown in Fig. 1. Die-bar 22 is then again forced to the rear and the two dies 9 and 16 coöperate to form the first blank as shown in

Fig. 3. The hammer 28 is then brought into action to remove the chips formed by the previous die action if they have not already fallen through the passages 3 and 4. After the hammer action and while the taper pointed blank and stock are held between the dies 9 and 16, the molder 29 is brought into action with its cavity in alinement with the blank. The molder is then moved longtudinally toward the blank and causes the metal to flow into the form shown in Fig. 4 consequent upon the shape of the abutment formed by the bosses 14 and 21 of the dies and the cavities 30 and 31 in the molder. The molder is then retracted to allow the completed blank to be removed. At the same time the die-bar is released, the release-bar 23 throws the die 16 away and permits the stock to be fed forward again into position shown in Fig. 1 for another cycle of operation.

What I claim is:

A method of making a calk pointed at each end, which consists in pointing the end of the rod of stock, then severing a blank of suitable length and simultaneously, by the severing action between two die blocks, pointing the rear end of the blank and the front end of the remainder of the stock, and clamping the severed blank and pointed stock in clamping portions of said blocks, and upsetting said blank while so held.

HORACE K. JONES.

Witnesses:
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WM. R. STONE.