

Nov. 26, 1935.

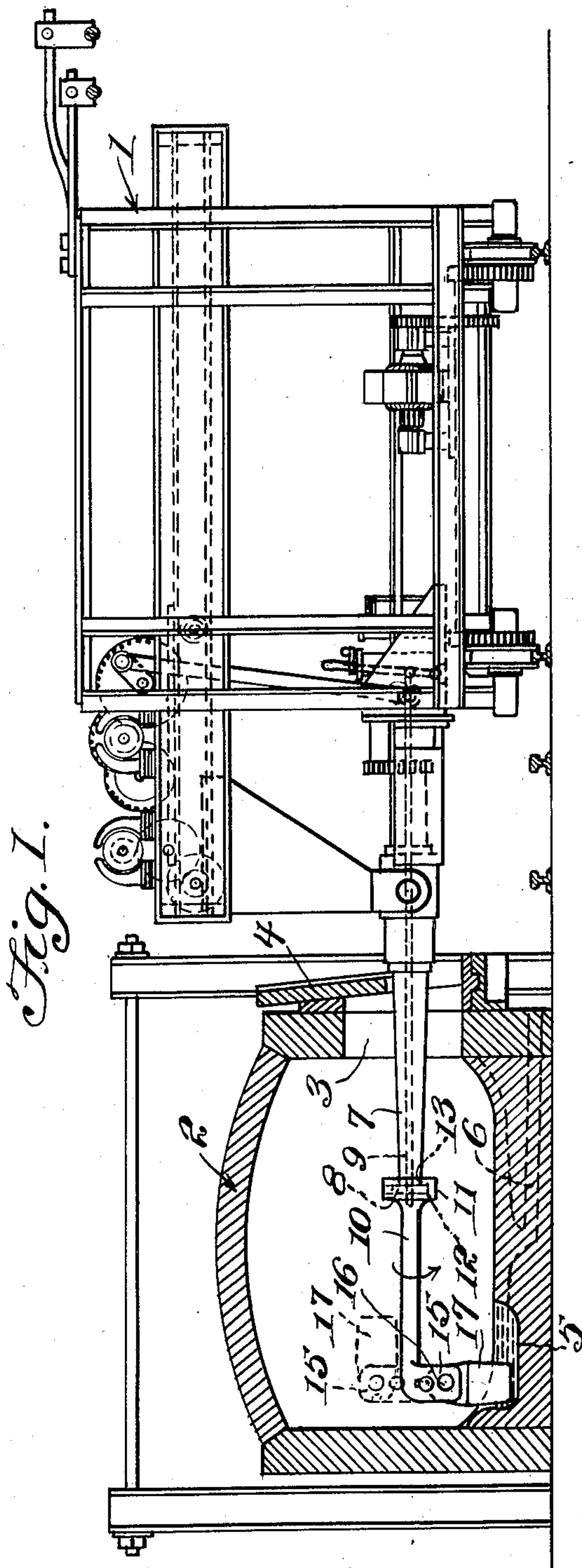
P. H. BEITMAN

2,022,334

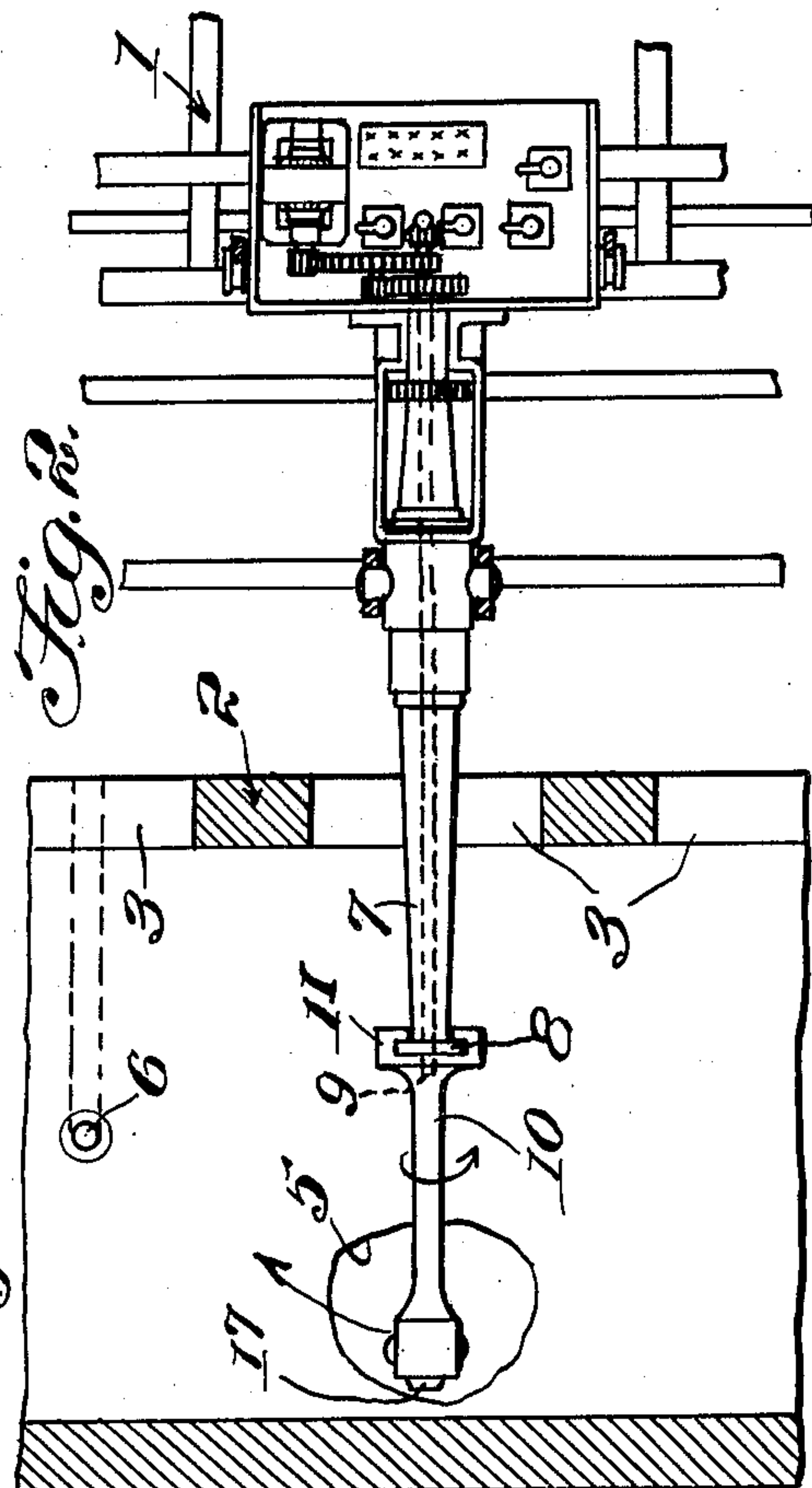
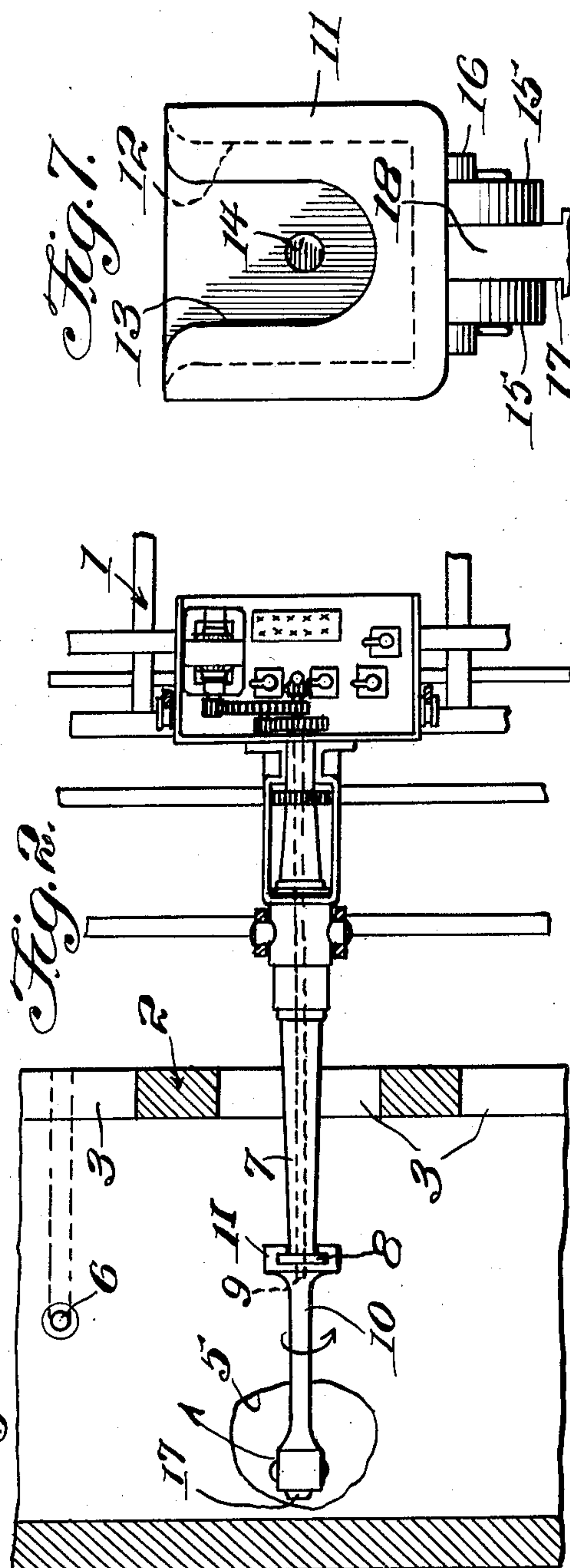
MOLTEN METAL DISPLACEMENT DEVICE

Filed March 4, 1935

2 Sheets-Sheet 1



WITNESS: *J. T. L. Wright*



Paul H. Beitman
INVENTOR
BY *Victor J. Evans & Co.*
ATTORNEY

Nov. 26, 1935.

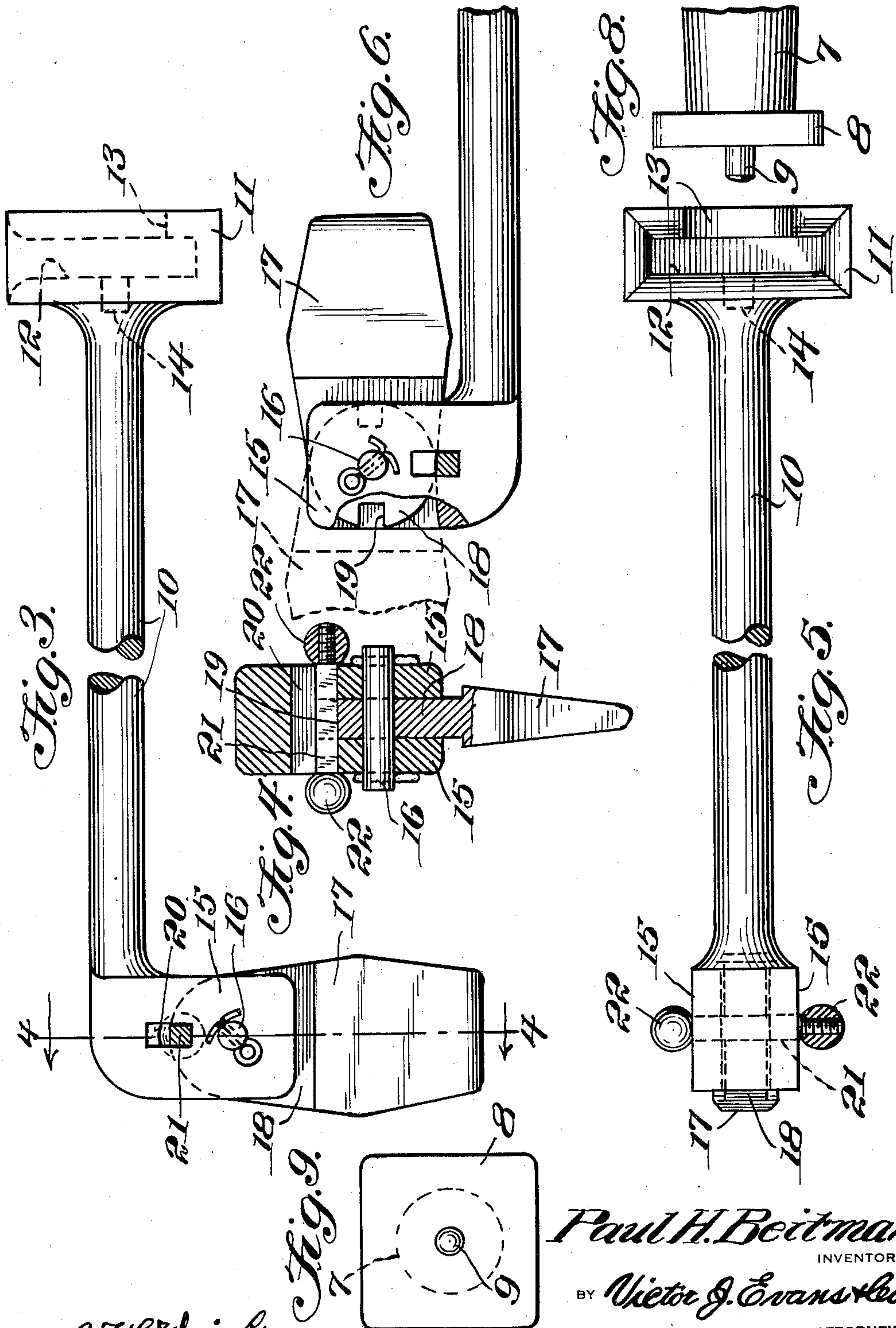
P. H. BEITMAN

2,022,334

MOLTEN METAL DISPLACEMENT DEVICE

Filed March 4, 1935

2 Sheets-Sheet 2



WITNESS: *J. L. Wright*

Paul H. Beitman
INVENTOR
BY *Victor J. Evans & Co.*
ATTORNEY

UNITED STATES PATENT OFFICE

2,022,334

MOLTEN METAL DISPLACEMENT DEVICE

Paul H. Beitman, Poland, Ohio

Application March 4, 1935, Serial No. 9,337

3 Claims. (Cl. 266—38)

This invention relates to a molten metal displacement device and has for the primary object the provision of a device which is especially adapted for use with a furnace charging apparatus whereby the latter may be employed for displacing molten metal from holes of a furnace with rapidity and ease and provides a time saver and materially reduces manual power and operating cost.

With these and other objects in view, this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is a side elevation illustrating a furnace charging device equipped with my invention and showing the latter operating in a furnace with the latter disclosed in section.

Figure 2 is a fragmentary top plan view, partly in section, illustrating the same.

Figure 3 is a side elevation, partly in section, illustrating the displacement device.

Figure 4 is a sectional view taken on the line 4—4 of Figure 3.

Figure 5 is a top plan view, partly in section, illustrating the displacement device.

Figure 6 is a fragmentary side elevation, partly in section, showing the paddle blade of the displacement device in inoperative position.

Figure 7 is an end elevation showing a coupling head of the displacement device.

Figure 8 is a fragmentary side elevation showing one end of the charging bar of the charging apparatus.

Figure 9 is an end elevation illustrating the same.

Referring in detail to the drawings, the numeral 1 indicates a power driven portable furnace charging apparatus capable of movement from one furnace to another and is shown associated with a furnace 2 of a conventional construction employed for molten metal wherein the door employed for controlling the entrance 3 is indicated by the character 4. The customary practice of removing molten metal from holes 5 in the furnace is to manually operate therein hand tools requiring considerable time and manpower to remove the molten metal from the holes to the drain passages 6 of the furnace. Furnaces of the character shown are equipped with charging apparatus and to permit the latter to be employed for removing the molten metal from

the openings 5 my tool or device is employed. To employ the charging device the usual charging box is removed from the charging bar and the tool employed in lieu thereof. The charging bar is indicated by the character 7 and is capable of rotation in either direction and with inward and outward movements with respect to the furnace and also capable of moving upwardly and downwardly. The free end of the charging bar is provided with a flange 8 and a connecting pin 9 slidably mounted and actuated by a suitable mechanism of the charging apparatus.

The tool or device constituting the present invention consists of a shank 10 having one end enlarged to form a head 11 equipped with a recess 12 and an opening 13 in communication with said recess and arranged in an end wall of the head. The head is also provided with a socket 14 aligning with the slot 13. The flange 8 of the charging bar seats in the recess 12 with the slot 13 receiving the body of the charging bar and the pin 9 enters the socket 14, thereby detachably securing the shank to the charging bar.

The opposite end of the shank 10 from the head 11 is flattened to form spaced ears 15 arranged at right angles to the shank and are apertured to receive a removable pivot pin 16 acting to pivotally connect to the shank a blade or paddle 17. The blade or paddle has a reduced apertured extension 18 fitting between the ears 15 and through which the pivot pin 16 extends. The extension 18 has a notch 19 adapted to align with a slot 20 formed in the flattened portion of the shank 10 when the paddle or blade is in operative position to receive a locking pin 21 slidably mounted in the slot 20 and having its ends weighted, as shown at 22, to cause the pin to gravitate into the notch and thereby lock the blade or paddle in an operative position and at right angles to the shank 10. The pin 21 may be moved out of the notch 19 and the paddle or blade positioned, as shown in Figure 6, paralleling the shank and located in a plane above the latter so that the tool or device may readily enter the furnace by way of the entrance 3 and by rotation of the charging bar the blade or paddle may assume operative position, as shown in Figure 1, with the pin 21 occupying the notch 19 locking the paddle or blade in the operative position so that on the rotation of the charging bar the blade will be caused to splash the molten metal from the openings 5 of the furnace into the drain passages 6.

A tool of the character described may be cheaply manufactured and stored in a compara-

tively small space when not in use and is readily adaptable to a furnace charging apparatus now in use so that the charging apparatus can be employed for dislodging the molten metal from openings of the furnace. Further, the tool described may be employed on the charging apparatus for destroying the bottom and ceiling of the furnace when necessary, the tool in this instance acting as a hammer or chisel on the charging bar and the latter in order to accomplish this work is moved mechanically upwardly and downwardly or in any other direction necessary to bring about the destruction of the furnace.

Having described the invention, I claim:

15 1. A molten metal displacement device comprising a shank, means for detachably securing one end of the shank to a charging bar of a furnace charging apparatus, a blade pivotally connected to the other end of the shank and
20 adapted to occupy an operative position at right angles to the shank or to be positioned to parallel the shank in an inoperative position, and means for securing the blade in operative position.

25 2. A molten metal displacement device com-

prising a shank, means for detachably securing one end of the shank to a charging bar of a furnace charging apparatus, a blade pivotally connected to the other end of the shank and adapted to occupy an operative position at right angles to the shank or to be positioned to parallel the shank in an inoperative position, and means for automatically securing the blade in operative position on its movement into said position from an inoperative position.

3. A molten metal displacement device comprising a shank, means for detachably securing one end of the shank to a charging bar of a furnace charging apparatus, a blade pivotally connected to the other end of the shank and adapted to occupy an operative position at right angles to the shank or to be positioned to parallel the shank in an inoperative position, said blade having a notch, said shank having a slot adapted to be aligned by the notch on the blade moving into operative position, and a weighted member operating in the slot to enter the notch for locking the blade in operative position.

PAUL H. BEITMAN. 25