

No. 717,449.

Patented Dec. 30, 1902.

E. POLLARD.

DIPPING FIRE LIGHTER OR LIKE BLOCKS INTO SOLUTIONS.

(Application filed Aug. 29, 1902.)

(No Model.)

3 Sheets—Sheet 1.

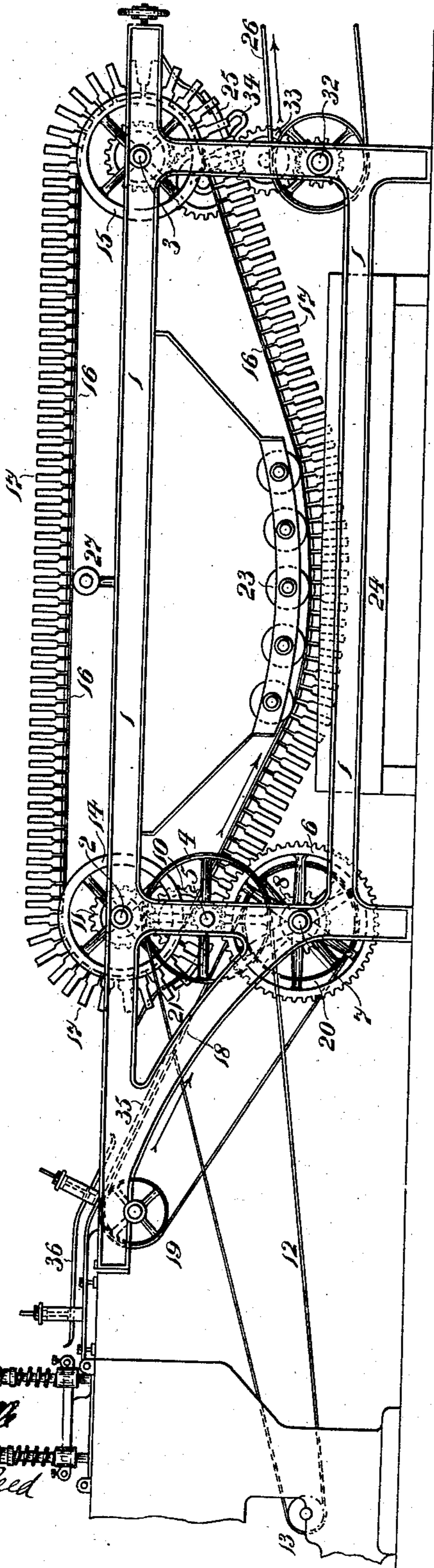


Fig. 1.

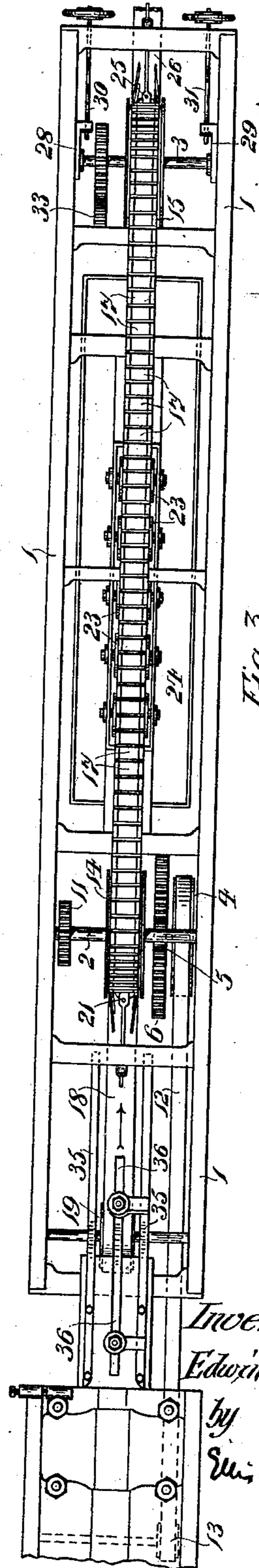


Fig. 3.

Witnesses
W. R. Hall
Edw. Z. Reed

Inventor
Edwin Pollard
by
Wm. Spear
Atty.

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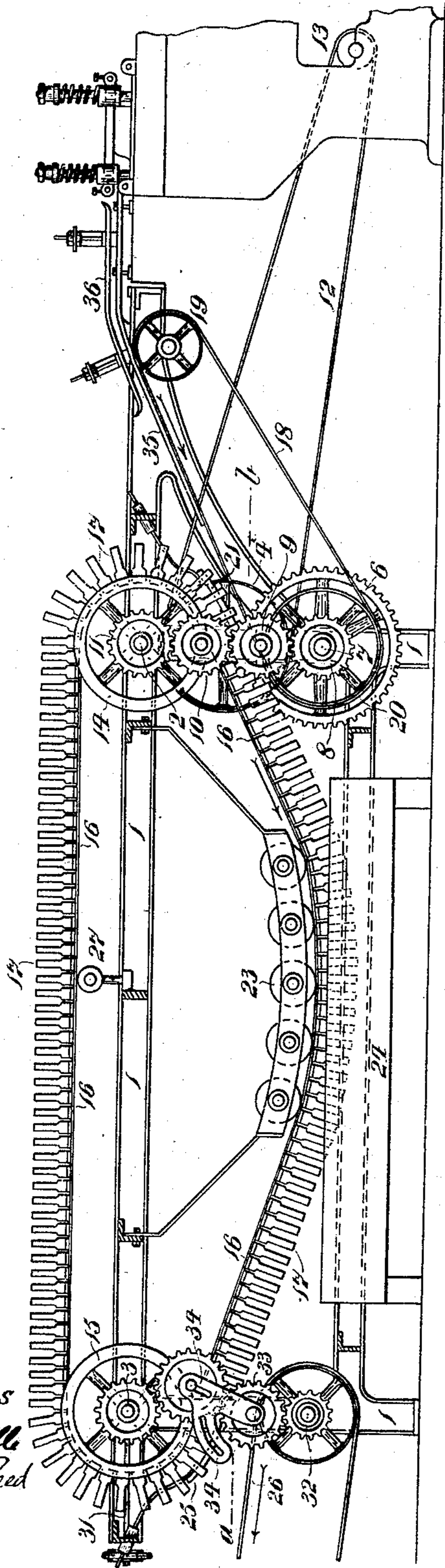


Fig. 2.

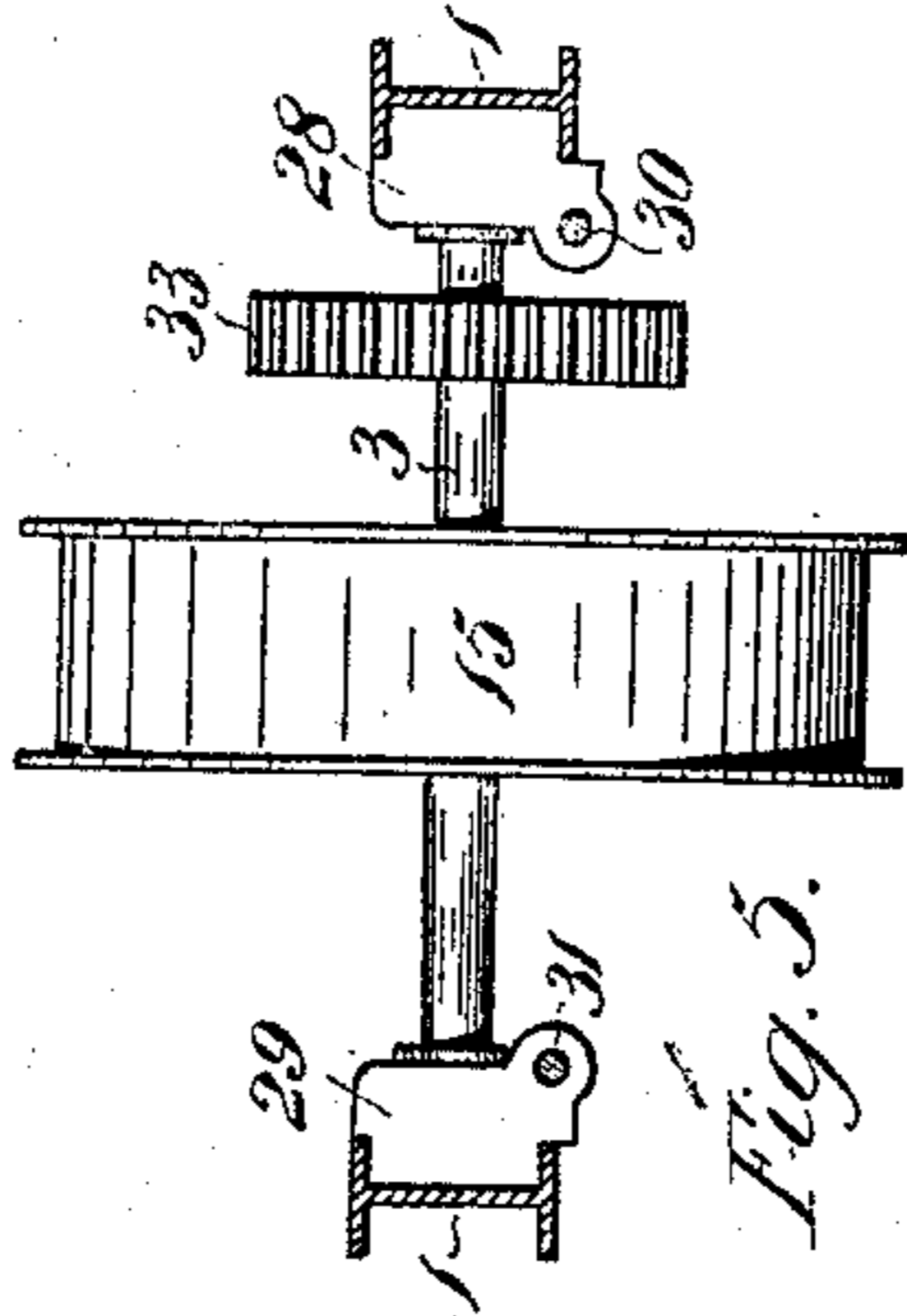


Fig. 5.

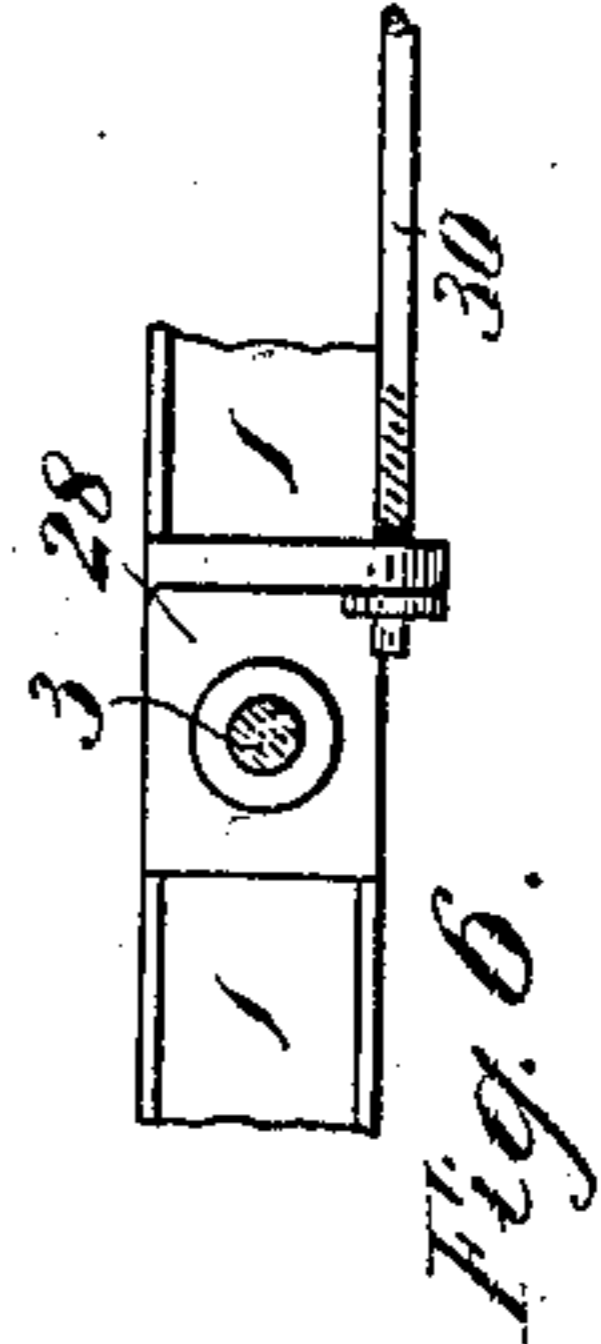


Fig. 6.

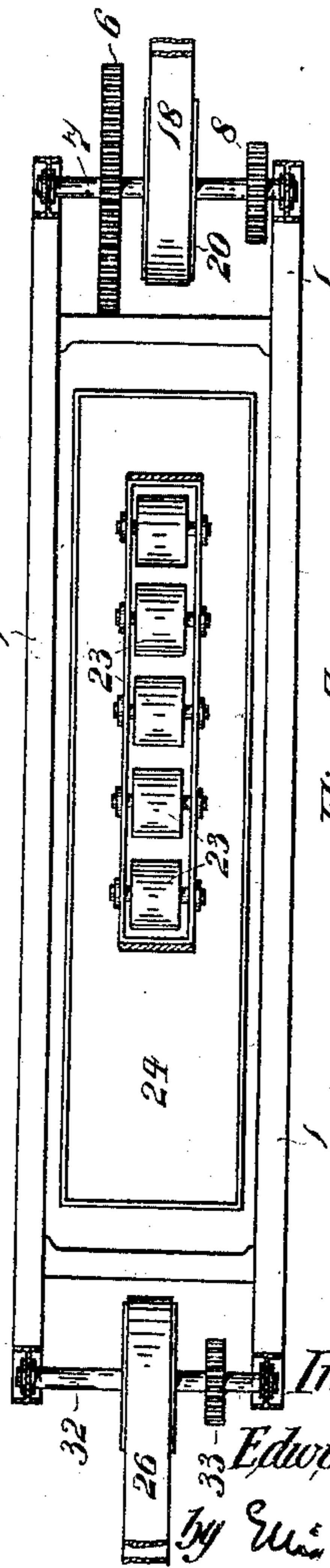


Fig. 4.

Witnesses
D. F. Hall
Edw. L. Reed

Inventor
Edwin Pollard
By Geo. Spear

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3 Sheets—Sheet 3.



Fig. 7.

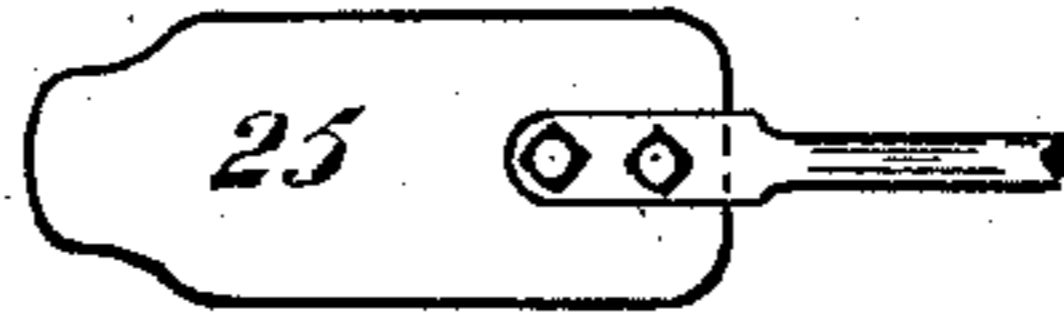


Fig. 8.

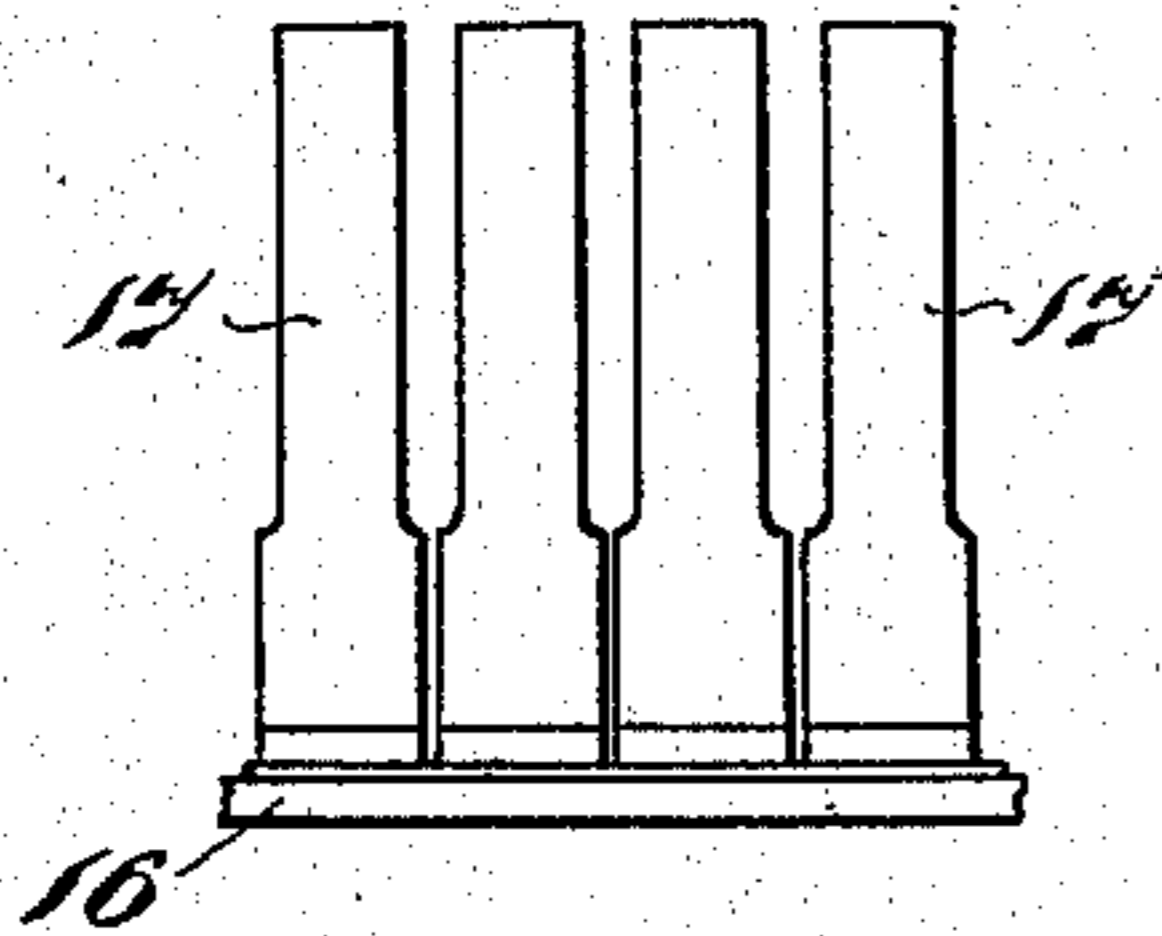


Fig. 10.

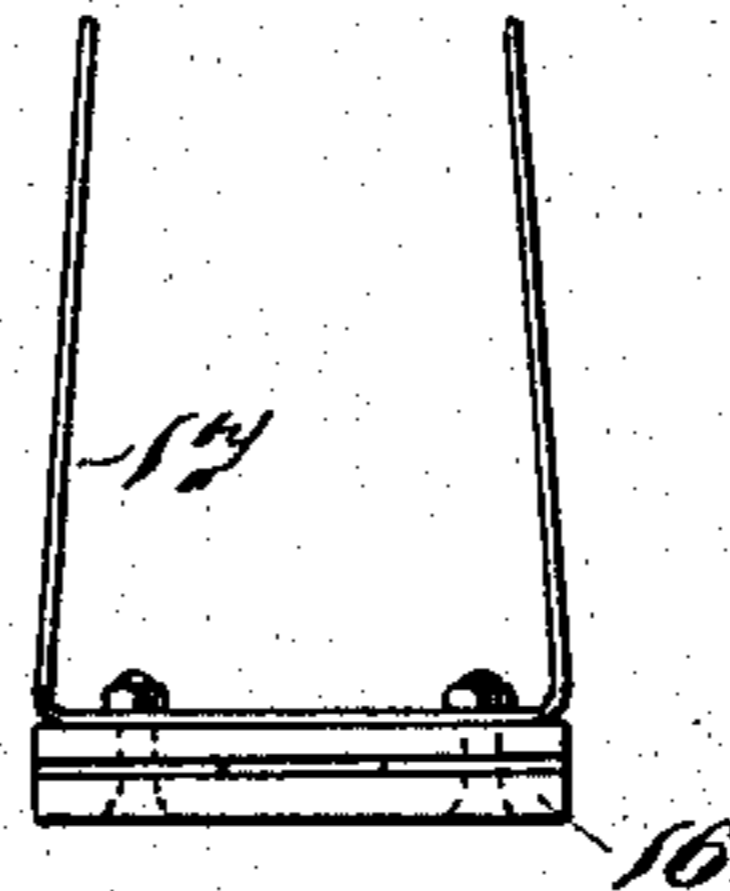


Fig. 9.

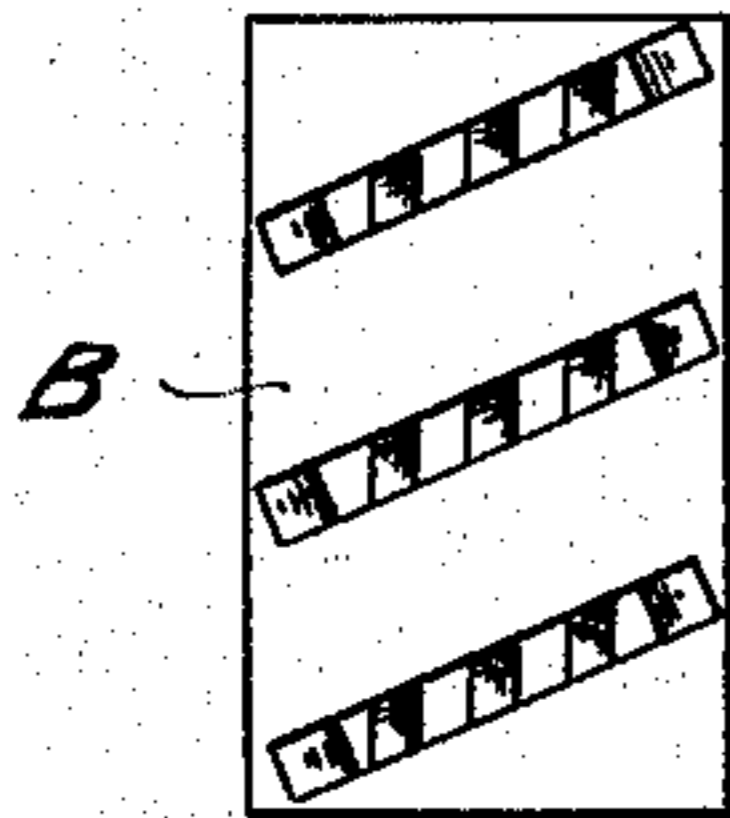


Fig. 12.



Fig. 11.

Witnesses

Edw. L. Reed
Edw. L. Reed

Inventor

Edwin Pollard
by *Miss Spear*
Atty

UNITED STATES PATENT OFFICE.

EDWIN POLLARD, OF SILSDEN, ENGLAND, ASSIGNOR TO POLLARD AND METCALFE, LIMITED, OF SILSDEN, ENGLAND, A FIRM.

DIPPING FIRE-LIGHTER OR LIKE BLOCKS INTO SOLUTIONS.

SPECIFICATION forming part of Letters Patent No. 717,449, dated December 30, 1902.

Application filed August 29, 1902. Serial No. 121,525. (No model.)

To all whom it may concern:

Be it known that I, EDWIN POLLARD, a subject of the King of Great Britain and Ireland, residing at Silsden, in the county of York, England, (whose postal address is Keighley Road, Silsden, aforesaid,) have invented certain new and useful Improvements in and Relating to Dipping Fire-Lighter or Like Blocks into Solutions, (for which I have obtained provisional protection in Great Britain, No. 8,904, dated April 17, 1902,) of which the following is a specification.

This invention has for its object the construction of a machine by combining and operating the several parts in such a manner so as to automatically collect fire-lighter and like blocks of suitable shape and pass them through a liquid solution, and when the said blocks have been passed through the solution to automatically release the blocks at the opposite end of the machine and convey them away without requiring the attention of a workman except at the feeding end when used apart from a machine constructed for grooving and cutting fire-lighter and like blocks into lengths.

In describing my invention in detail reference is made to the accompanying sheet of drawings, in which—

Figure 1 represents an elevation of one side of my dipping-machine combined with a fire-lighter-cutting machine, a portion of the delivery end of which is shown in elevation attached to the dipping-machine. Fig. 2 is an elevation showing the opposite side, with one side frame removed for more clearly illustrating the gearing and other operative parts of the dipping-machine. Fig. 3 is a plan of Fig. 1; and Fig. 4, a sectional plan through line *a b* of Fig. 2, showing both side frames; but the gripping-springs and inclined carrying-belts removed. Fig. 5 is a detached detail showing the belt-expansion or sliding brackets supporting one of the shafts and pulleys utilized for carrying the gripping-spring belt. Fig. 6 is a side elevation of one of the sliding brackets and a portion of a tension-screw. Figs. 7 and 8 are detached detail plans of the spring-expanders, which when in position are respectively secured in the machine at the feeding and delivery ends.

Figs. 9 and 10 show a sectional end and a longitudinal elevation of the gripping-springs and carrying-belt, and Figs. 11 and 12 an end elevation and plan of a grooved fire-lighter block.

In carrying out my invention I mount upon the side frames 1 of the machine two revolving shafts 2 and 3, one shaft near to each end of the machine. The shaft 2 is in connection with the main driving-pulley 4, accomplished by a small spur-pinion 5, gearing with wheel 6, the pinion 5 being secured to the boss of driving-pulley 4 and both carried on a stud fixed to the machine-frame 1. The spur-wheel 6 is secured on bottom shaft 7, and at the opposite end of said shaft, near the other side frame 1, is mounted a train of spur-wheels 8, 9, 10, and 11. (See Fig. 2.) The wheel 11 is secured on shaft 2 and completes the connection between said shaft and main driving-pulley 4, so that on the rotation of the said pulley the shaft 2 and other parts of the machine are put in motion, as is clearly shown.

Motion to the machine may be obtained in any convenient manner. In the drawings the machine is shown as being driven by a belt 12, connecting a small pulley 13, secured on one of the rotating shafts of a fire-lighter-cutting machine, with main driving-pulley 4 of dipping-machine.

Upon the top shafts 2 and 3 flanged pulleys 14 and 15 are secured. Upon these pulleys is placed an endless belt 16, to which are attached a number of gripping-springs 17, adapted for the purpose, as hereinafter described.

The fire-lighter or like blocks B may be automatically fed to the dipping-machine as delivered by a fire-lighter machine when used in conjunction therewith, as the blocks are cross-cut and delivered by said machine, or, as will be readily understood, when used apart from such machine the blocks may be fed by hand-labor. The drawings show the dipping-machine in connection with the delivery end of a fire-lighter machine. In either case of feeding the blocks to be dipped are delivered upon the upper surface of an inclined carrying-belt 18, supported by pulleys 19 and 20, the latter pulley being secured on bottom revolving shaft 7.

The inclined carrying-belt 18 travels in the

direction of arrow, conveys the deposited blocks beneath an expander 21, rigidly secured in a requisite position between the gripping-springs 17, a distance above the inclined carrying-belt 18 sufficient to allow the fire-lighter or like blocks to pass under the expander 21, between same and inclined belt 18, and between the expanded gripping-springs 17, in the manner as hereinafter described.

As the respective gripping-springs 17, secured to the endless belt 16, come in contact with the expander 21, the said springs on passing over the edges of the expander are opened out to a greater width than the width of the blocks B to be dipped, thus allowing said blocks to be conveyed by the inclined carrying-belt 18 to a position for the expanded springs 17 to grip the said blocks, the gripping taking place as the springs leave the expander 21, when the springs are allowed to contract toward their normal condition and grip the fire-lighter blocks before they can leave the inclined carrying-belt 18 by passing over the pulley 20.

The lower portion of the endless belt 16 and gripping-springs, with blocks B held between same, are guided in a downward direction by a curved path provided with a series of rollers 23, under which the belt 16 passes, causing the gripping-springs 17 and blocks B, held between same, to be immersed in an inflammable liquid placed in cistern 24 at base of machine.

Immediately after the blocks B leave the bath of inflammable liquid in cistern 24 the blocks, while still held by the gripping-springs 17, may be passed over brushes suitably fixed for the bristles or the like to extend between the gripping-springs and come in contact with the blocks just immersed.

Other means, such as the direction of a strong current of air from a blower, may be used, either separately or in combination with the brushes, for removing the surplus or dropping liquid from the blocks as they are traveling from the cistern 24 toward another and similar expander 25, placed between the gripping-springs 17, by which as the springs arrive and pass over the edges of said expander the springs are expanded and the blocks automatically liberated and allowed to fall upon a traveling belt 26, by which the immersed blocks are conveyed away.

As the expanded gripping-springs 17 leave the expander 25 they assume their normal position until expanded by coming in contact with the expander 21 at the feeding end of the machine.

The upper portion of the endless belt 16

may be supported in any convenient manner—such as by a small pulley 27, as shown—and the belt kept in tension by mounting the shaft 3 in sliding brackets 28 and 29, which when in their required position are held rigid to the side frames 1 by bolts conveniently placed. The lateral position of shaft 3 and flanged pulley 15 is adjusted and the belt 16 tightened by the tension-screws 30 and 31 engaging with the respective brackets 28 and 29 and end cross-bar of machine-frame.

Rotary motion from shaft 3 to shaft 32, supporting-pulley, and one end of conveying-belt 26 is transmitted by a train of spur-wheels 33. (See Fig. 2.) One of the intermediate wheels is mounted on a radial plate 34 for allowing the adjustment of the position of shaft 3 on regulating the tension of belt 16, the radial plate being supported at the bottom end on a stud and secured in position in a convenient manner when the wheels are geared up.

The blocks as they are delivered by the fire-lighter-cutting machine pass to the inclined carrying-belt 18 between guide-bars 35, placed one at each side of the inclined carrying-belt and under the bar 36, arranged so as to keep the blocks in a flat position and prevent one block mounting upon another as they are traveling from one machine to the other.

What I claim as my invention is—

1. A machine provided with an inclined carrying-belt and with an endless belt supporting gripping-springs combined with expanders and a dipping-cistern arranged and operated substantially in the manner as shown and described and for the purpose set forth.

2. A machine in which are combined a carrying-belt supporting gripping-springs 17, rotating pulleys 14 and 15 having expanders 21 and 25 below same, with guiding-rollers 23 and cistern 24 substantially as and for the purpose set forth.

3. In combination a machine provided with an operated endless belt 16 supporting gripping-springs 17 adapted for conveying and liberating blocks B, with a cistern 24 and expanders 21 and 25 applied and arranged substantially in the manner and for the purpose as set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

EDWIN POLLARD.

Witnesses:

ERNEST A. WELLS,
W. ILLINGWORTH.