

(No Model.)

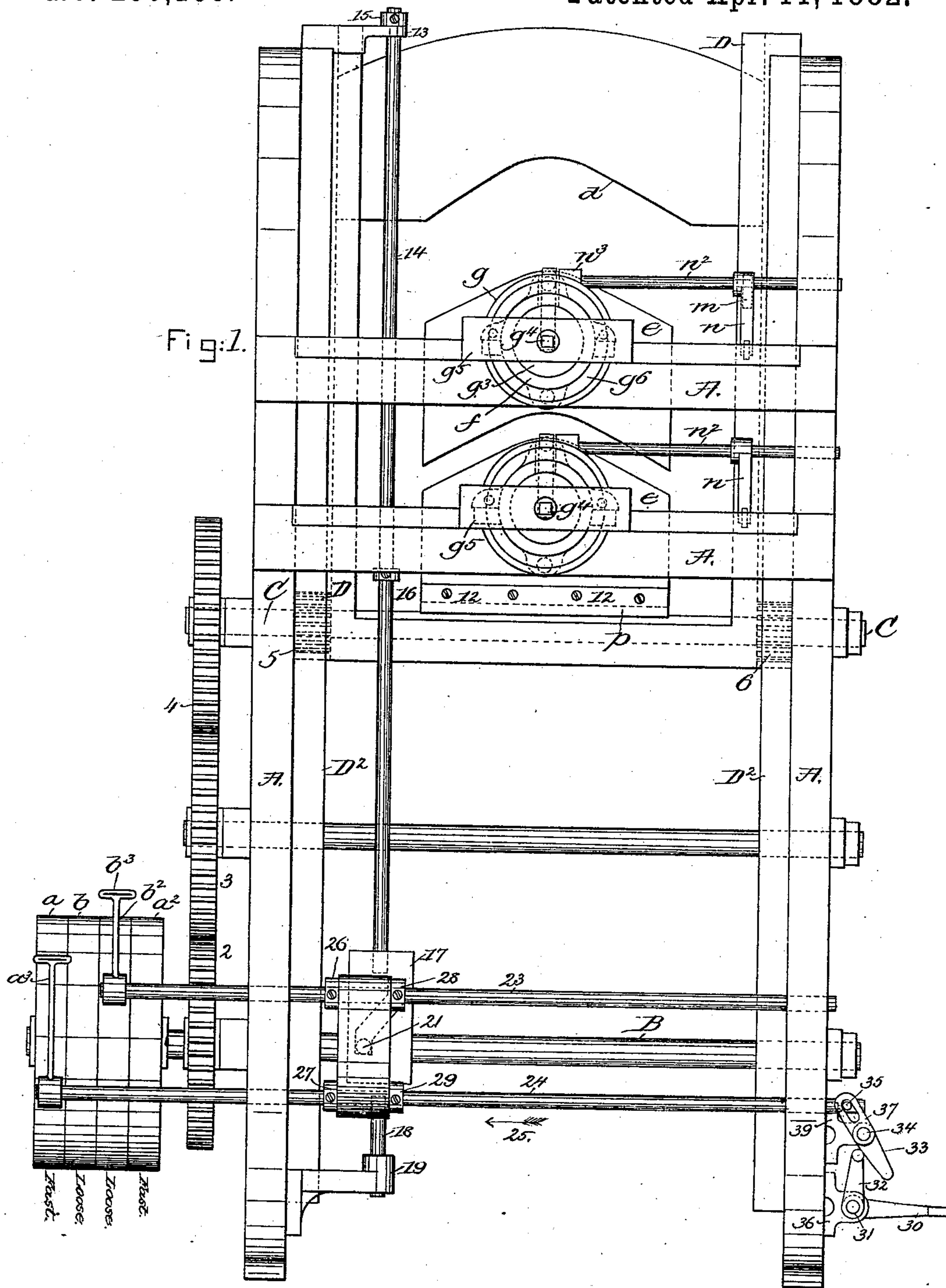
J. W. D. FIFIELD.

3 Sheets—Sheet 1.

CRIMPING MACHINE.

No. 256,136.

Patented Apr. 11, 1882.



Wittnesses.

W. H. Sigston.
John F. C. Pinknot

Inventor:
John W.D. Fifield

by Crosby & Gregory
Attys.

(No Model.)

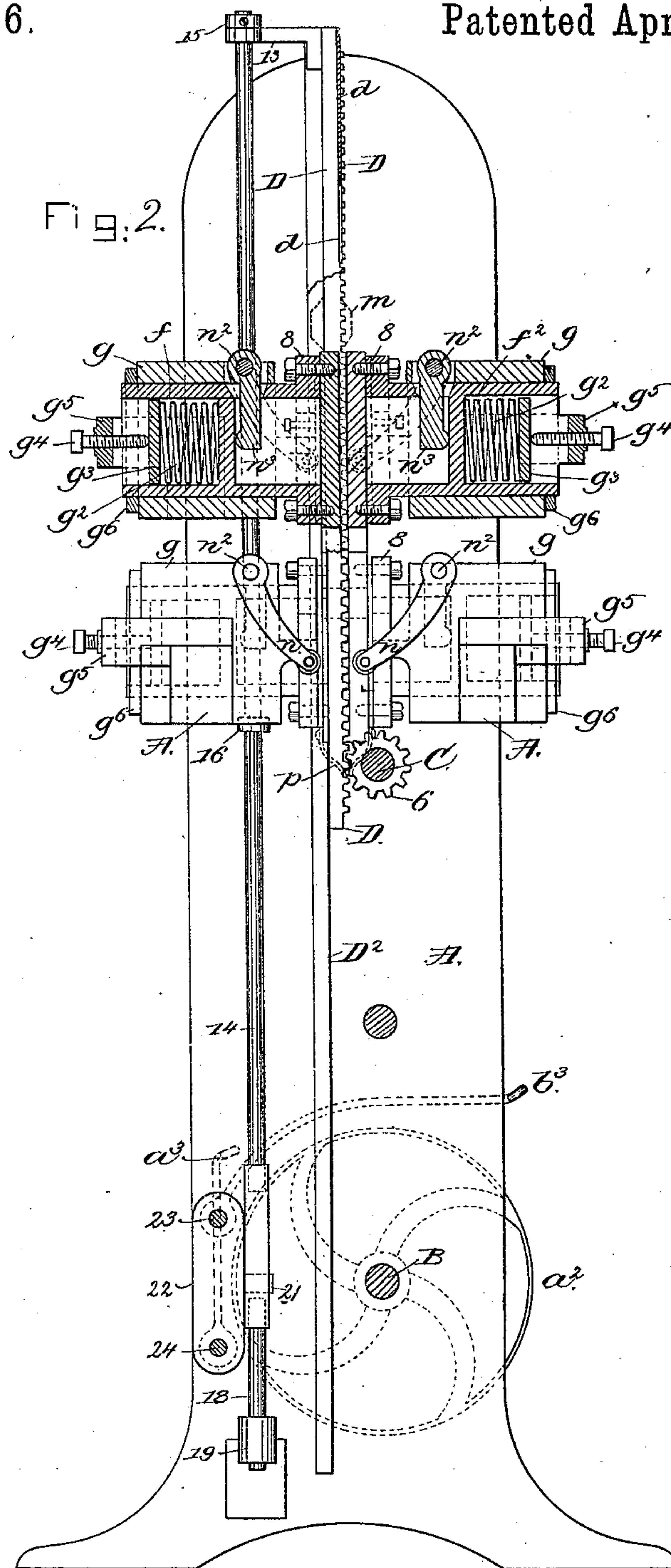
J. W. D. FIFIELD.

3 Sheets—Sheet 2.

CRIMPING MACHINE.

No. 256,136.

Patented Apr. 11, 1882.



Witnesses

Bernice J. Noyes.

John F. C. Prentiss

Inventor.

John W. D. Fifield,

by Crosby & Gregory.

Attys.

(No Model.)

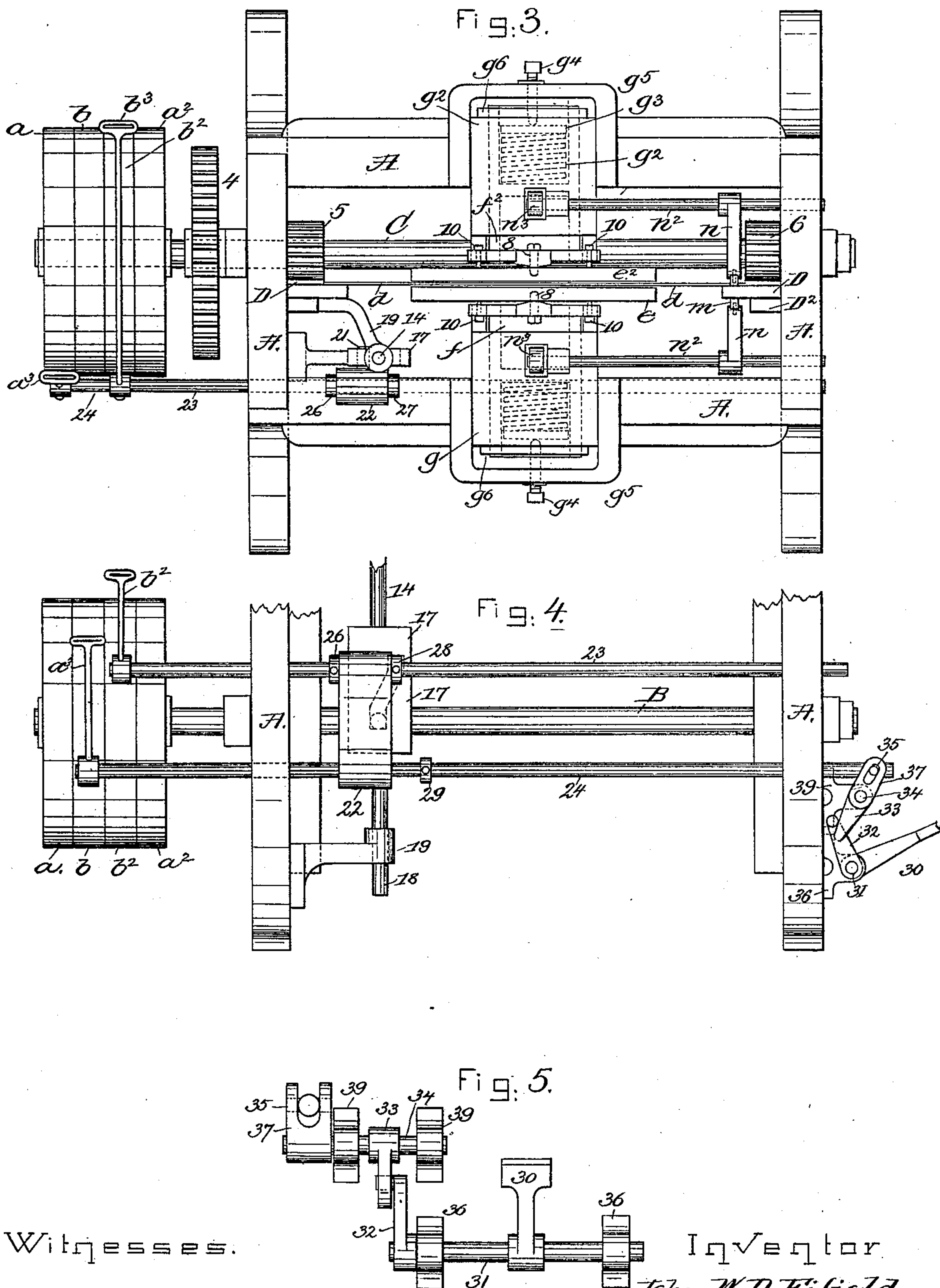
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CRIMPING MACHINE.

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Patented Apr. 11, 1882.



Witnesses.

John F. C. Brinkert
W. H. Sigston.

Inventor
John W. D. Fifield
by Crosby Gregory
Atty's.

UNITED STATES PATENT OFFICE.

JOHN W. D. FIFIELD, OF NORTH BROOKFIELD, MASSACHUSETTS.

CRIMPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 256,136, dated April 11, 1882.

Application filed February 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. D. FIFIELD, of North Brookfield, county of Worcester, State of Massachusetts, have invented an Improvement in Crimping-Machines, of which the following description, in connection with the accompanying drawings, is a specification.

This invention in crimping-machines has for its object the production of a simple and efficient machine, in which the form may be automatically operated continuously or be left at rest in elevated position after each upper has been crimped, and be then started by the operator, who will move one of the two belt-shippers to place the belt controlled by it from a loose upon a fast pulley.

In this my invention I employ two jaws, pivoted centrally upon reciprocating pistons, normally pressed forward by means of springs, and operating in connection with the said pistons are devices to draw them backward against their springs to separate the jaws just as the form, in its descent, is entering the doubled or folded part of the upper between them to be crimped, as described in a former patent issued to me.

My invention consists in the combination of devices hereinafter set forth, and specified in the claims at the end of this specification.

Figure 1 represents, in side elevation, a crimping-machine embodying my invention, the form being shown in its most elevated position with the belt-shippers in position to insure such action of the belts as will at once insure the descent of the form. Fig. 2 is a sectional view, taken from the right of Fig. 1, as it would appear with the right-hand side of the framework omitted, the top pair of crimping-jaws in vertical central section, and with the rack-bar at the right-hand side of the machine partially broken out to show the wedge. Fig. 3 is a top view of Fig. 1; and Figs. 4 and 5 are details to be referred to, showing more fully the parts by which the operator, when desired, may determine the time of the descent of the form.

The frame A will be of proper shape to contain the working parts. The main power-driven shaft B has upon it two fast pulleys, a^2 , and alongside of them two loose pulleys, b^2 . These fast pulleys in practice will be driven, one from an open or plain and the other from

a crossed belt. These belts (not necessary to be herein shown) will be driven continuously from any main shaft of the factory, and will, by their change of position on the pulley a by the belt-shippers a^3 b^3 , drive the shaft B in one or the other direction, according to which belt is operative on its fast pulley.

The shaft B has fixed to it a toothed gear, 2, which engages an idle-wheel, 3, that in turn engages a toothed gear, 4, on the shaft C, which latter is provided with two pinions, 5 6, which are engaged with and made to reciprocate the rack-bars D. The form d , of usual shape, is connected with the upper ends of the rack-bars D, adapted to slide against suitable guides, D^3 , the movement of the said rack-bars by the pinions 5 6 causing the descent and ascent of the form to carry the upper thereon between the jaws e e^2 , pivoted upon the pointed ends of the screws or pins 8 in the flanged heads of the pistons f f^2 . The shank of each piston is extended backward through a cylinder, g , co-operating with which is a spring, g^2 , acted upon by a disk or washer controlled as to its position by an adjusting-screw, g^4 , in a rigid cross-piece, g^5 . Each of the said springs g^2 regulates the force of the forward pressure of one of the jaws e or e^2 . The extreme forward position of each jaw is determined by the nut g^6 , screwed upon its shank.

The rack-bar at the right-hand end of the machine, viewing it as in Fig. 1, has a double wedge, m , (shown best in Figs. 2 and 3, but also in dotted lines, Fig. 1,) which, just as the lower edge of the form d is to insert the upper thereon (not shown) between the jaws, acts upon the rolls of the arms n of rock-shaft n^2 , having arms n^3 extended into openings or slots in the pistons f f^2 , and causes the said rock-shafts and their arms n^3 to temporarily move the said pistons and jaws e e^2 backward or away from each other to let the upper get started between the jaws; but as soon as the wedge m passes the arms n the springs g^2 immediately assume control of the pistons and jaws.

The two sets of jaws, pistons, &c., one just above the other, being alike, I shall not specifically describe but one of them, but shall employ like letters to designate like parts.

In connection with the lower set of jaws I

have shown the arm n^3 in dotted lines, and in connection with the upper set of jaws the arm n in dotted lines. Each pair or set of jaws is separated by like devices, operated by the wedge m as the form descends, and for the same purpose. The jaws $e e^2$, at their rear sides, near their ends, are acted upon by adjustments 10 , so as to maintain the faces of the said jaws in the proper position one with relation to the other. The form rises and falls in a vertical plane, and each jaw, held by a yielding spring-pressed piston, as described, is enabled to adapt itself independently to the thickness of the upper at each side of the form, whereas if but one of the jaws $e e^2$ could yield to the thickness of the upper folded over and about the form, the latter would have to bend or give when passing the stationary jaw, which would be detrimental to the production of good work, as well as to the durability of the machine. The form, after passing the upper thereon between both pair or set of jaws, rises; but should the upper adhere to the form, it will be removed by the upper-detacher p , (shown in dotted lines, Fig. 2, and full lines, Fig. 1,) it being a thin sheet-metal plate secured to the lower edge of one of the lower jaws by screws 12 .

The rack D at the left-hand end of the machine has an ear, 13 , through a hole in which is extended the rod 14 , connected at its lower end with the slotted or cam slide 17 . The lower end of the slide 17 has a rod, 18 , in continuation of rod 14 , and rod 18 is entered into a guide, 19 . Rod 14 has upon it two adjustable collars, 15 16 , so that as the rack-bar D rises and falls the lug 13 will strike the said collars at the proper times to move the rod 14 and slide 17 and operate the belt-shippers a^3 b^3 automatically as the form completes its descent, and operate it automatically, or not operate it, as the form completes its ascent, as the operator may desire, as will be described.

In Fig. 1 I have shown the parts adapted to operate the shipper automatically at the highest and lowest positions of the form, to thus keep it moving continuously, as provided for in United States Patent No. 216,768; but for some classes of work, and with some operators, or where speed is not essential, the belt-shipper which controls the belt that causes the form to descend will not be actuated automatically, but by the operator in any usual manner. I have shown one contrivance for doing this through a foot-lever, 30 . When the form d was elevated, as in Fig. 1, the ear 13 , by its action on collar 15 , lifted the rod 14 and cam-slide 17 , causing the latter by its action on the pin 21 , fixed to block 22 , to move the said block 22 in the direction of the arrow 25 . The block 22 as it was so moved acted against the collars 26 27 on the rods 23 24 , extended through holes made in the said block, and moved the rod 23 and belt-fork b^3 to place the belt carried by it upon the loose pulley b^2 , while the fork a^3 of rod 24 acted to place the belt carried by it upon the fast pulley a , thus leaving the

belts in condition to insure the descent of the form. As soon as the lug 13 in the descent of the form d meets collar 16 the cam-slide 17 will be depressed, and its slotted part, acting on pin 21 , will move the block 22 in the direction to act simultaneously on collars 28 29 of rods 23 24 , and cause shipper-fork b^3 to put its crossed belt on the fast pulley a^2 and shipper-fork a^3 to put its open belt on the loose pulley b , which will automatically effect the reversal of the movement of shaft B and raise the form d .

When it is not desired to automatically reverse the movement of shaft B as soon as the form d reaches its highest position, it is only necessary to loosen collar 27 on rod 24 , so that as the block 22 is moved in the direction of the arrow 25 the said block cannot, through the collar 27 , as before described, move the rod 24 with it, and consequently the rod 24 will remain at rest, as in Fig. 4, with the shipper-fork a^3 on the loose pulley b , and fork b^3 being at the same time placed on loose pulley b^2 , the machine will stop with the form fully elevated.

In Fig. 4, to avoid confusion, I have entirely removed the collar 27 . When the collar 27 is loose or omitted, and the machine is at rest with the form d elevated, the form may be started down by simply moving the rod 24 and shipper-fork a^3 laterally in the direction of the arrow 25 , by hand or otherwise. I prefer to do this, however, by a foot-lever, 30 , on a shaft, 31 , in bearings 36 . The shaft 31 has an arm, 32 , which acts upon an arm, 33 , of a rock-shaft, 34 , having a second arm, 37 , suitably forked and slotted to embrace rod 24 , and to receive a pin, 35 , on the said rod, as in Figs. 4 and 5. Shaft 34 is held in bearings 39 .

The detachers p , made of thin sheet metal, have their edges normally nearer together than the thickness of the form, so that as the form passes between them in its ascent the edges of the detachers are pressed in a yielding manner against the form and detach the upper therefrom.

I do not broadly claim a slotted block to automatically move a belt-shipper rod as the form reaches its extreme positions. By the employment of two independent rods, 23 24 , and their adjustable collars, I am enabled to move the belts more or less, and move one or both of the said rods automatically at the completion of the ascent or descent of the form.

I claim—

1. The yielding jaws $e e^2$, their carrying-pistons $f f^2$, and springs, and devices to adjust the springs and control the forward movement of the pistons and jaws, combined with the vertically-reciprocating form, substantially as described.

2. The yielding jaws $e e^2$, the pistons $f f^2$, with which they are adjustably connected, their springs, and devices to limit the forward positions of the pistons, and the reciprocating form, combined with the wedge m , adapted to

be reciprocated with the rack-bar, and with the rock-shafts n^2 and their arms, to separate the jaws as the form enters the upper thereon between the jaws, substantially as described.

5 3. The reciprocating form, and the lug 13, raised and lowered in unison with it, the rod 14, its collars, the cam-slide, pin 21, and block 22, combined with the two belt shippers or
10 forks, and their rods 23 24, provided with collars, whereby the belt-shipper forks are automatically moved to place the driving-belts of the machine on the fast and loose pulleys in their proper order, to automatically reverse the
15 direction of movement of the form at each end of its stroke, substantially as described.

4. The fast and loose pulleys, the shipper-rod 24, its fork, and one fast collar, and the shipper-rod 23, its fork, and two collars on the
20 said rod, combined with the cam-slide having a reciprocating motion, and with the block 22, operated thereby, whereby the said block in its movement in one direction carries with it both rods and in the other direction but one

rod, substantially as and for the purpose described.

25 5. The reciprocating cam-slide, the block 22, moved by it, the shipper-rod 23, its two collars, shipper-rod 24, and its single fixed collar, the fast and loose pulleys, and shipper-forks, combined with a lever to move the rod 24 in one
30 direction to effect the reversal of shaft B, to depress the form, as set forth.

6. The jaws, and reciprocating form d , to carry the upper between them, combined with the yielding detachers adapted to come into posi-
35 tion between the upper and form and detach the upper therefrom as the form rises, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two sub-
40 scribing witnesses.

JOHN W. D. FIFIELD.

Witnesses:

JOS. P. LIVERMORE,
B. J. NOYES.