

No. 652,813.

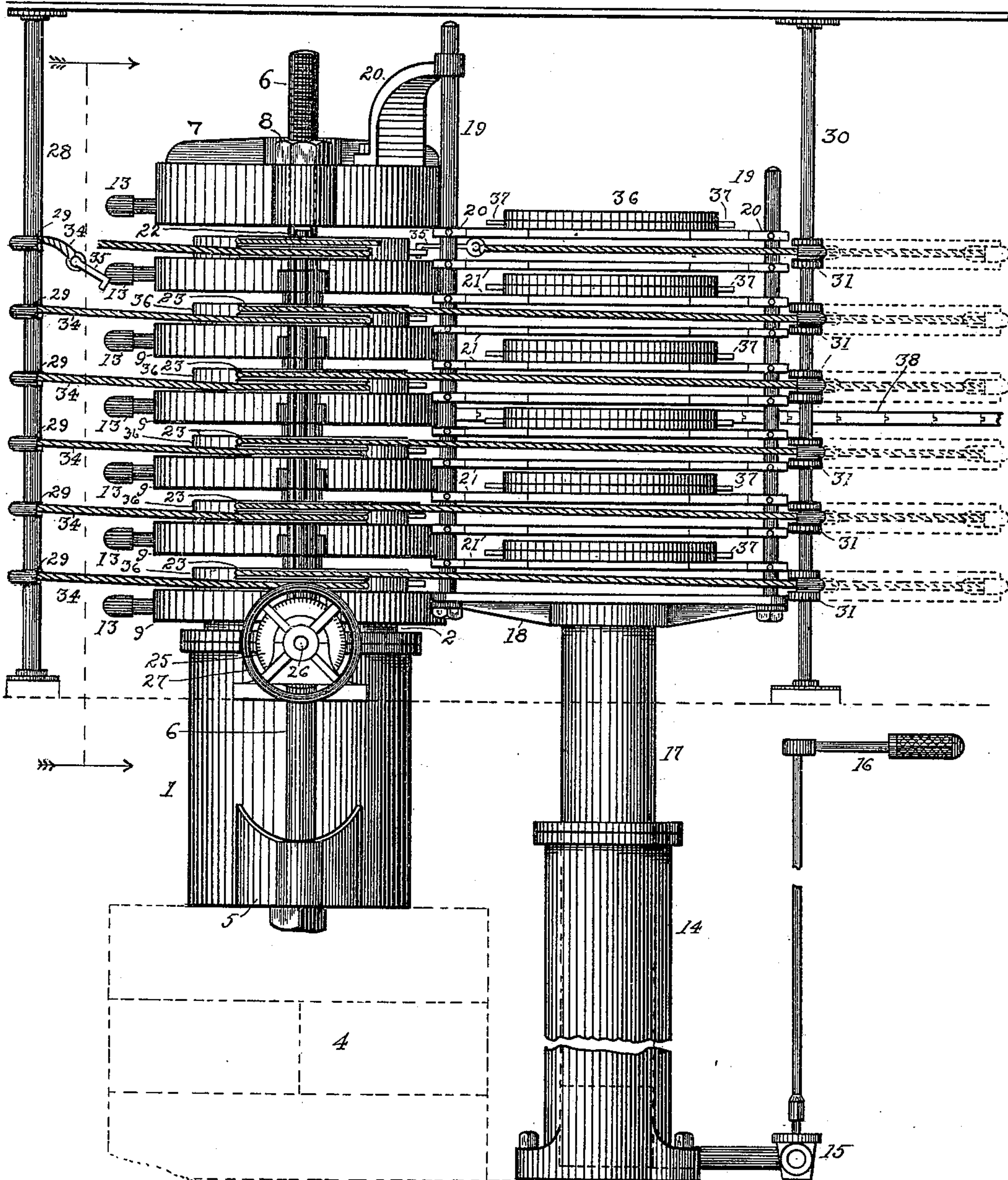
Patented July 3, 1900.

F. A. SEIBERLING.
MULTIPLE PRESS VULCANIZER.

(Application filed Mar. 29, 1900.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:

Wm. Hood

G. B. Minard

Fig. 1.

Inventor:

Frank A. Seiberling,
By Humphrey & Humphrey,
Attys.

No. 652,813.

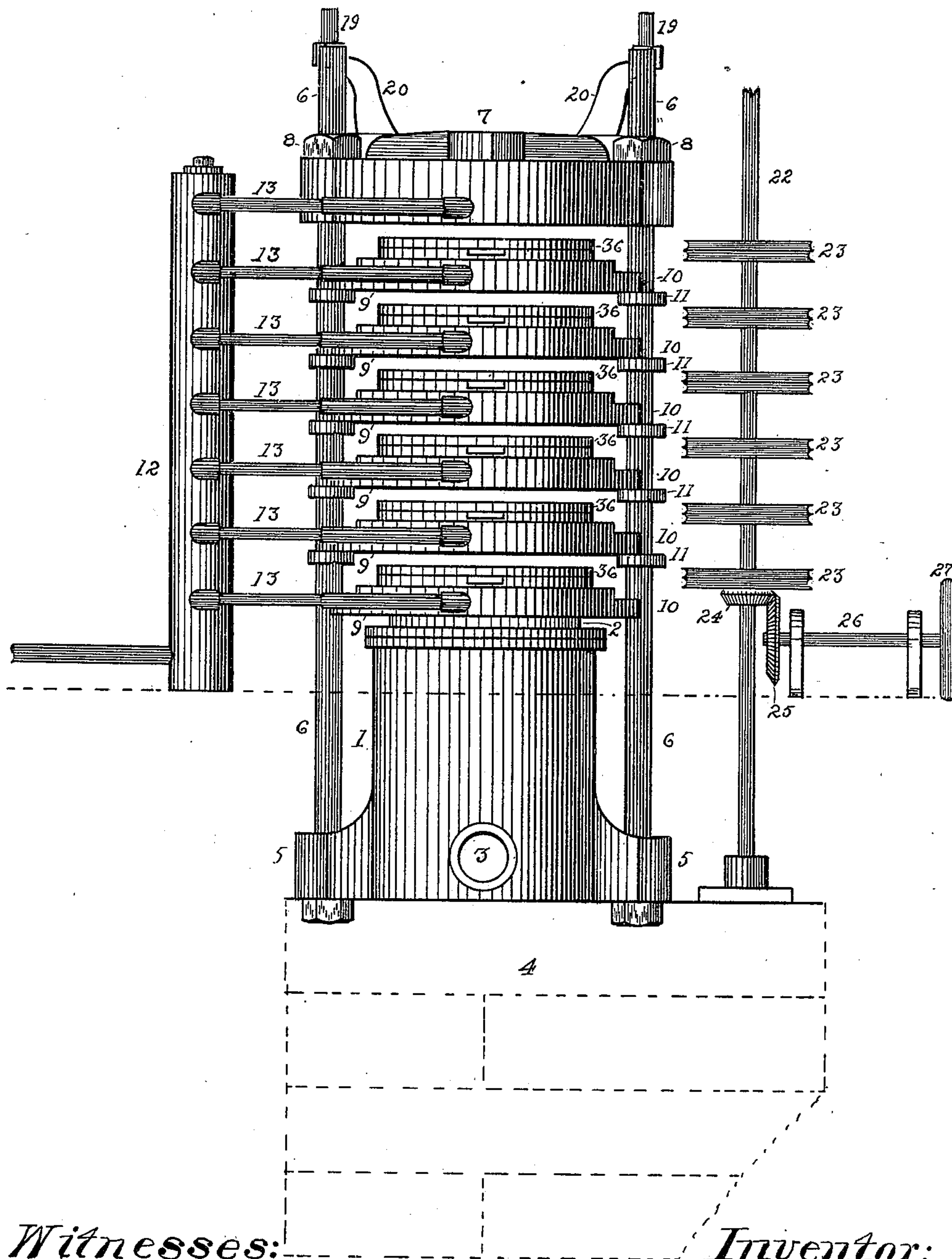
Patented July 3, 1900.

F. A. SEIBERLING.
MULTIPLE PRESS VULCANIZER.

(Application filed Mar. 29, 1900.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses:

Wm. H. Wood
G. B. Minard

Fig. 2.

Inventor:

Frank A. Seiberling,
by Humphrey & Humphrey,
Attys.

No. 652,813.

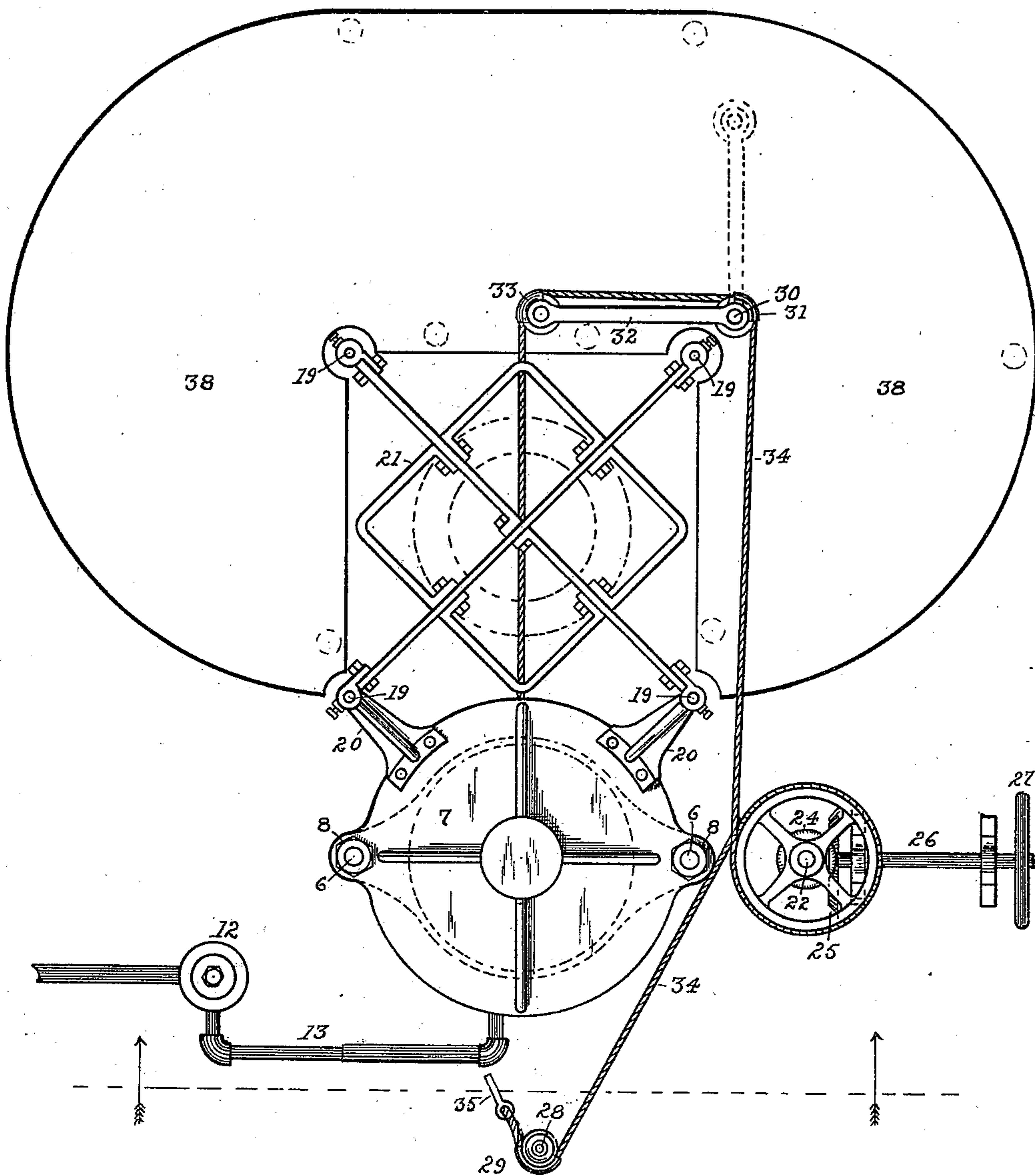
Patented July 3, 1900.

F. A. SEIBERLING.
MULTIPLE PRESS VULCANIZER.

(Application filed Mar. 29, 1900.)

(No Model.)

3 Sheets—Sheet 3.



Witnesses:
Wm. G. Good
G. B. Minard

Fig. 3.

Inventor:
Frank A. Seiberling,
by Humphrey & Humphrey,
Attys.

UNITED STATES PATENT OFFICE.

FRANK A. SEIBERLING, OF AKRON, OHIO.

MULTIPLE PRESS-VULCANIZER.

SPECIFICATION forming part of Letters Patent No. 652,813, dated July 3, 1900.

Application filed March 29, 1900. Serial No. 10,621. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. SEIBERLING, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Multiple Press-Vulcanizers, of which the following is a specification.

My invention has relation to improvements in vulcanizing-presses for rubber tires and other articles, and it especially relates to that class of presses in which a number of horizontal hollow circular cases adapted to be heated by steam are arranged in a vertical series and adapted to be moved vertically, to separate, to receive tire-holding molds, and to be drawn together to compress and heat said molds for the process of vulcanization.

The object of my invention is to provide improvements in devices for elevating and delivering to the press the molds holding the green tires and for removing them when the vulcanization is completed.

To the aforesaid object my invention consists in the peculiar and novel construction, arrangement, and combination of parts hereinafter described and then specifically pointed out in the claims, reference being had to the accompanying drawings, forming a part of this specification.

In the accompanying drawings, in which similar reference-numerals indicate like parts in the different views, Figure 1 is an elevation; Fig. 2, an elevation looking from the left of Fig. 1, and Fig. 3 a plan.

Referring to the drawings, 1 is the cylinder of an upwardly single-acting hydraulic press, in which slides a plunger 2 and controlled by the inlet and outlet of the water through the opening 3. The cylinder is supported on a foundation 4 and has at each side brackets 5, in which are securely attached rods 6, that extend above the cylinder and bear a head 7, retained by nuts 8. Fitted to slide on the rods 6 are a series of hollow circular cases 9, having side guides 10 to fit the rods and for another purpose to be stated. These guides consist of projecting semicircular forked lugs to partially inclose the rods, but less in height than the cases 9.

Attached to the rods 6 at determined intervals are secured, by set-screws or other means,

a series of collars 11, arranged to be severally engaged by the guides 10 on the case immediately above them and serve to arrest the descent of each case beyond a determined distance, so that when the plunger 2 has completed its downward stroke the cases will occupy the position shown in Figs. 1 and 2. The cases 9 are arranged to be heated by live steam by a pipe 12 and branch pipes 13, connected with said pipe and the several cases, the elbows permitting enough free movement for that purpose. Adjacent to but lower than the cylinder 1 is a smaller hydraulic cylinder 14, single-acting upward, controlled by a valve 15, governed by a handle 16. In this cylinder is a plunger 17, bearing a head 18, from the corners of which arise parallel rods 19, two of which slide in offset-guides 20, fastened to the head 7, and thus secure accurate movement of the cases. Attached to the rods 19 are a series of like horizontal platforms 21, double the number of the spaces between the cases 9 and arranged at regular intervals. At the front of the cylinder 1 is a vertical revolvable shaft 22, bearing at intervals opposite the spaces between the cases 9 like sheaves 23 and a small bevel-gear 24, driven by a larger bevel-gear 25 on a shaft 26, turned by a hand-wheel 27.

At the left of the cylinder 1 is a shaft 28, bearing at intervals opposite the spaces between the cases 9 small sheaves 29, hooded to prevent the ropes hereinafter mentioned from falling off. At the right of the platforms 21 is a like shaft 30, bearing at the same intervals similar hooded sheaves 31, located between the bifurcated ends of swinging horizontal arms 32, freely mounted thereon. In the free ends of the arms 32 are like hooded sheaves 33. Passing around the pulleys or sheaves 23 are heavy cords or wires 34, bearing at each end a hook. The molds 36 are of a common pattern, each consisting of two annular castings arranged to register and having grooves to form the tire; but each lower case is provided at each side with a perforated lug 37, adapted to be engaged by the hooks 35.

In operation molds with prepared tires inclosed are placed on the working table 38 and pushed onto alternate platforms 21 as they are successively brought even with it by the

plunger 17 until each alternate platform bears one mold. These platforms are then adjusted vertically by the plunger 17 until each mold is brought opposite a space between the cases

5 9. The hooks 35 on the ends of the ropes 34, passing around the sheaves 29, are inserted in the holes in the lugs 37 nearest the press and the hand-wheel 27 turned until the molds are drawn between the cases 9. The cases 9
10 being heated by live steam by the pipes hereinbefore mentioned, the plunger 2 is forced upward, compressing the molds between the heated cases during the time requisite for the vulcanization of the tires. During this time
15 another set of molds with tires inclosed is placed on alternate platforms 21. When the time for vulcanization has elapsed, the plunger 2 is lowered, and the hooks 35 on the opposite ends of the ropes inserted in the lugs
20 37 on the side next to the platforms 21 of the molds in the press, and these molds with the cured tires drawn upon the empty platforms 21. The position of these platforms is slightly changed, bringing the molds with the green
25 tires in alinement with the spaces between the cases 9, and the process repeated. The platforms are then gradually lowered and one by one the molds containing the cured tires are drawn out upon the working table and
30 their places are filled by molds containing green tires and the platforms raised until the platforms are brought opposite the spaces between the cases 9, and the process repeated. In placing and removing the molds from the
35 platforms 21 the arms 32 are rocked out of the way, as indicated in dotted lines in Figs. 1 and 3.

I am aware that a number of vulcanizers held down by a head retained by side bolts
40 and pressed upward by a hydraulic press is of itself not new, and such I do not broadly claim; but

What I claim, and desire to secure by Letters Patent, is—

45 1. The combination with a vertically-acting vulcanizer and means for operating it, a vertically-moving plunger-actuated platform in juxtaposition therewith with independent means for operating it, of means for transferring molds from said platform to said vulcanizer and removing them therefrom.

50 2. The combination with a vertically-acting vulcanizer and means for operating it, a vertically-moving plunger-actuated platform in juxtaposition therewith with independent means for operating it, of means for supplying said vulcanizer with a complement of molds at one operation.

60 3. The combination with a vertically-acting vulcanizer and means for operating it, a vertically-moving plunger-actuated platform in juxtaposition therewith with independent means for operating it, of means for simultaneously supplying said vulcanizer with a
65 complement of molds at one operation and removing all of said molds simultaneously at a succeeding operation.

4. The combination with a vertically-acting vulcanizer, mechanism arranged to fill said vulcanizer with molds at one operation and
70 empty it at a next succeeding operation, of a plunger-actuated platform arranged to operate in conjunction therewith provided with compartments for holding the molds containing the unvulcanized articles to be supplied
75 to said vulcanizer and receive a like number of molds with vulcanized products from said vulcanizer.

5. In a vulcanizer of the class specified the combination with a hydraulic cylinder and its
80 plunger, guide-rods connected with said cylinder and a head attached to and supported by said guide-rods, of hollow cases arranged to be heated by live steam having guides to run on said rods, and collars secured to said
85 guide-rods to limit the descent of said several cases respectively, substantially as shown and described.

6. In a vulcanizer of the class specified, the combination with a hydraulic cylinder and its
90 plunger, guide-rods connected with said cylinder and a head attached to and supported by said guide-rods, and hollow cases arranged to be heated by steam adapted to run on said rods and be raised by said plunger, of a hy-
95 draulic cylinder adjacent to said first cylinder having a plunger bearing a series of platforms held at certain distances apart arranged to bear and receive tire-holding molds and to be brought in horizontal alinement with the
100 spaces between said cases, substantially as shown and described.

7. In a vulcanizer of the class specified the combination with a series of hollow cases adapted to be heated, arranged in vertical
105 alinement and means for moving said cases to and from each other, of a hydraulic cylinder and a plunger adapted to reciprocate therein, bearing a series of platforms in vertical alinement double the number of spaces
110 between said cases and adapted to bring one-half of said platforms alternately in the same horizontal planes with said cases, substantially as shown and described.

8. In a vulcanizer of the class specified the
115 combination with a series of hollow cases arranged in vertical alinement, and means for moving said cases to and from each other and a series of platforms arranged at intervals in vertical alinement and means for bringing
120 said platforms in horizontal alinement with the spaces between said cases, of molds adapted to lie between said cases, and a series of cords adapted to be severally connected with said molds, sheaves in horizontal alinement
125 with said platforms for said cords to run on, and means for simultaneously drawing said cords to move said molds from said platforms to said cases and to return them to the plat-
130 forms, substantially as shown and described.

9. In a vulcanizer of the class specified the combination with a series of hollow cases in vertical alinement, and means for severally heating them and for separating and forcing

them together, of an adjacent hoisting apparatus arranged to simultaneously bring a number of tire-holding molds in horizontal alinement with the spaces between said cases,
5 and means for simultaneously transferring said molds to said spaces, substantially as shown and described.

In testimony that I claim the above I hereunto set my hand in the presence of two subscribing witnesses.

FRANK A. SEIBERLING.

In presence of—

C. P. HUMPHREY,

C. E. HUMPHREY.