

(No Model.)

3 Sheets—Sheet 1.

F. J. DUDLEY.  
PRESS.

No. 551,351.

Patented Dec. 10, 1895.

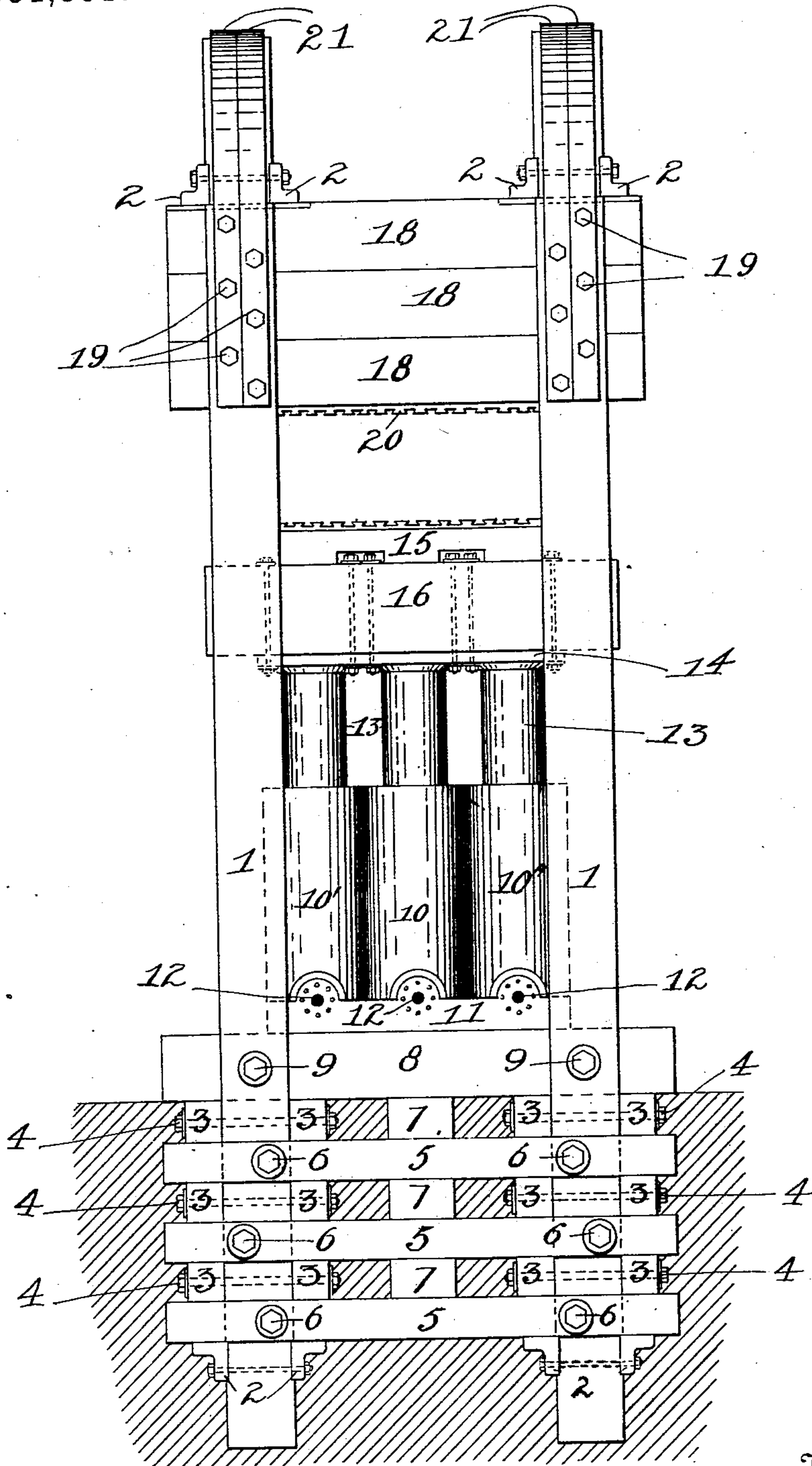


FIG. 1.

Witnesses  
T. B. Ford  
Hardie L. Keith

Inventor.  
Frank J. Dudley  
By Attorney  
A. Woodson

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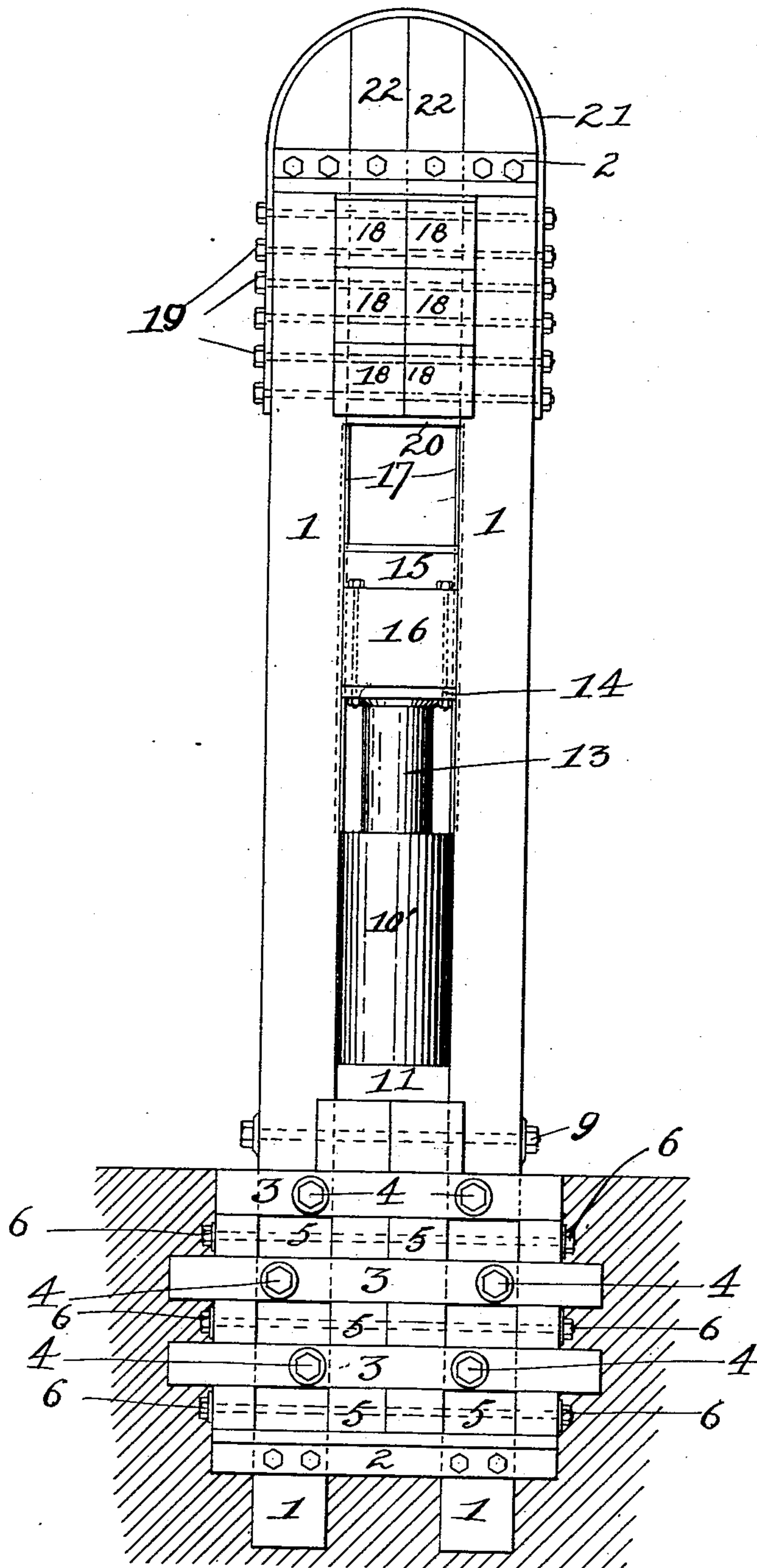


FIG. 2.

Witnesses

T. B. Ford

Hardie L Keith,

Inventor

Frank J. Dudley,

By Attorneys

so  
A. Woodson

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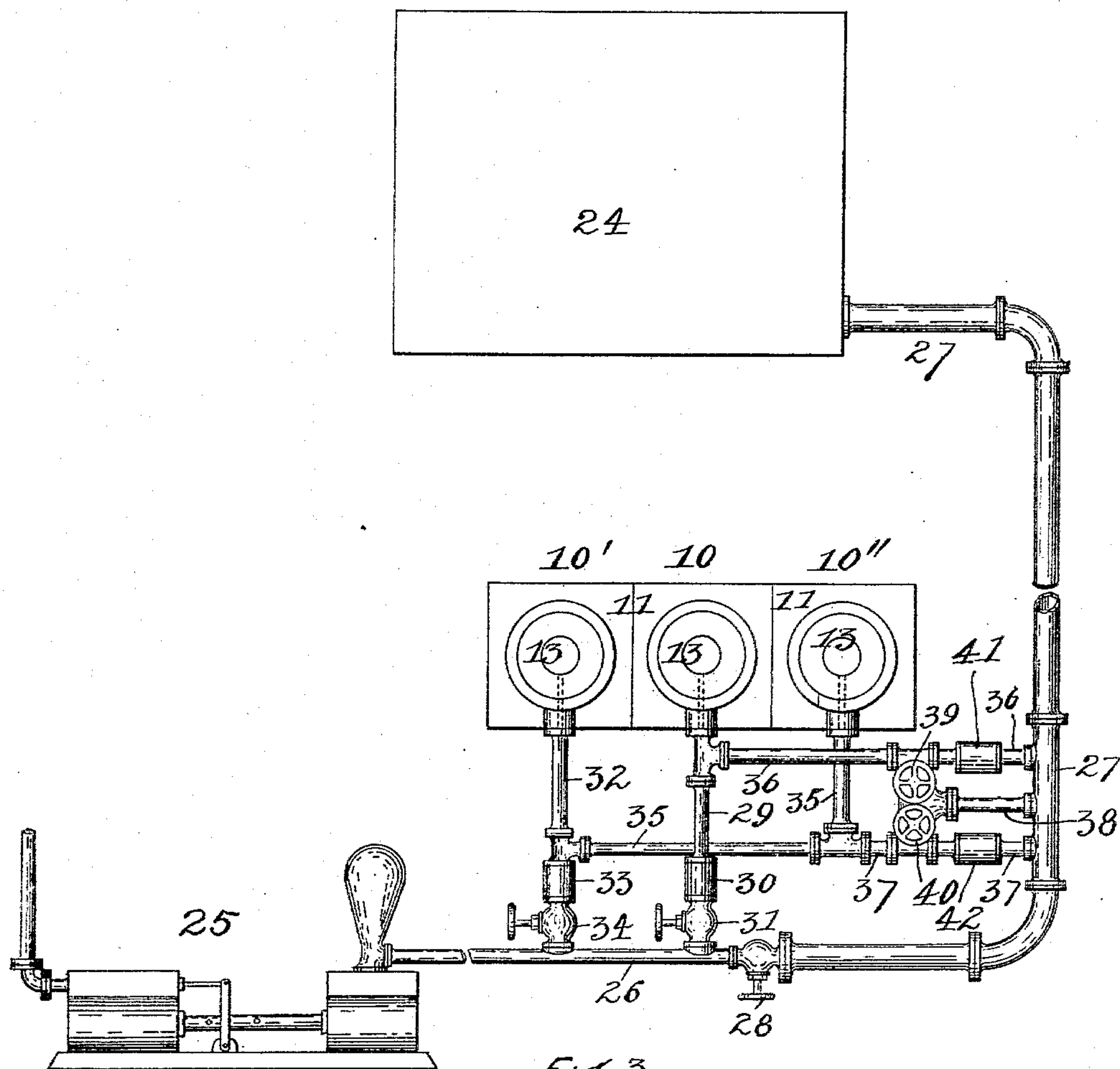


FIG. 3.

Witnesses  
T. B. Ford  
Hardie L. Keith

Inventor  
Frank J. Dudley,

By Attorney  
A. Woodman



# UNITED STATES PATENT OFFICE.

FRANK JENNESS DUDLEY, OF AMOSKEAG, GEORGIA.

## PRESS.

SPECIFICATION forming part of Letters Patent No. 551,351, dated December 10, 1895.

Application filed May 27, 1895. Serial No. 550,846. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK JENNESS DUDLEY, a citizen of the United States of America, and a resident of Amoskeag, in the county of Dodge and State of Georgia, have made a new and useful Press; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

The invention is illustrated in the accompanying drawings, as follows:

Figure 1 is a front elevation of the device and a section of the foundation cement structure, showing the substructure of the press. Fig. 2 is an end elevation thereof, also showing the substructure by a section of the cement-work. Fig. 3 is a plan of the press-cylinders, showing piping connecting same with the filling-tank and pressure-pump, said tank and pump being attached in diagrammatical form.

The framework of the press will now be described.

1 are timbers, say, twenty by twenty inches square. These timbers 1 are joined in pairs by angle-irons 2, bolted thereto at each end, and transverse bars 3 are bolted on each side of the timbers forming each pair near the bottom and a short distance apart thereon, bolts 4 passing through said transverse bars 3 in the timbers 1. Similar bars 5 join the pairs of timbers to each other, bolts 6 passing through said transverse bars 5 and the timbers 1, as best shown in Fig. 2. Timbers 7 lie transversely of the timbers 5 and extend between them. Resting upon the substructure thus formed are timbers 8, laid side by side and notched to receive the timbers 1, bolts 9 holding them securely in place. Upon the upper side of these timbers 8 rest the cylinders 10, 10', and 10'', of which there are three and which are secured or cast integral with a common base 11 and which are provided with connections 12 for the water-pipes. Pistons 13 of any desired form work within these cylinders 10 and are connected by a joining-plate 14 at their upper ends. Above this joining-plate is a platen 15, which is the lower or movable platen of the press, and between which and the plate 14 there

rests a timber 16, which is removable in order to allow of the pistons 13 being withdrawn entirely from the cylinders for repair. This timber 16 also forms a bolster upon which the platen 15 rests. Gibs 17 are seated in the sides of the timbers 1, as shown in Fig. 2, and form ways for the platen to move on. These gibbs should be very strong, say of two-inch by four-inch steel, in order that the platen may have no lateral movement which would tend to deflect the pistons from their proper positions concentrically of the cylinders. Resting against the under sides of the angle-bars 2, at the top of the timbers 1, are transverse timbers 18, which are notched to fit said timbers and which are secured by bolts 19 passing through the transverse timbers 18 at each end and through the correlative portions of the timbers 1. To the under side of the lower pair of timbers 18 is secured the upper or stationary platen 20. The bolts 19 also secure the shackles 21 to the upper ends of the timbers 1. The upper ends of these timbers 1 are rounded off to fit the curvature of the shackles, and blocks 22 are inserted endwise between the upper sides of the upper transverse timbers 18 and the said shackles and securely bolted by bolts 23 to the angle-bars 2.

The substructure of this device will be set securely in cement.

24 is a tank at such an elevation as is convenient, and 25 is a pump of sufficient capacity to furnish water-pressure for the press. Pipes 26 and 27, forming a continuous conduit, connect the pump 25 with the tank 24, a valve 28 situated at the junction of these two pipes 26 and 27 governing communication between them. A pipe 29, which has connected therewith a check-valve 30 and a globe-valve 31, connects the pipe 26 with the cylinder 10. A pipe 32, provided with a check-valve 33 and a globe-valve 34, connects the said pipe 26 with the cylinder 10'. A pipe 35 connects the pipe 32 above the valves 33 and 34 with the cylinder 10''. A pipe 36 connects the pipe 29 with the pipe 27, and a pipe 37 connects the pipe 35 and hence also the pipe 32 with the pipe 27. A pipe 38 connects with both pipes 36 and 37 and leads therefrom into the pipe 27, a valve 39 governing the flow of water from the pipe 36 into the pipe 38, and a valve 40 governs the flow



into said pipe 38 of water from the pipe 37. A check-valve 41 is incorporated in the pipe 36, and a like check-valve 42 is incorporated in the pipe 37. The check-valves 30 and 33 prevent the flow of water from the cylinders to the pipe 26, while the check-valves 41 and 42 prevent the flow from said cylinders to the pipes 27.

The operation of this device is as follows:  
 10 The construction of press herein shown and described is intended for re-pressing or compressing cotton, but the press may obviously be used for any purpose. The pump 25 is started and fills the tank 24 with water, after  
 15 which the press is ready for operation, the valve 28 remaining closed until such time as more water may be needed in the tank for refilling or cooling. A bale of cotton is then placed on the platen 15 and the valve 31  
 20 opened, which allows water to flow from the pipe 26 under pumping pressure to the cylinder 10, valve 39 being closed and the check-valve 41 preventing flow of water to the pipe 27. This admits water under pressure to the  
 25 cylinder 10 and forces the platen up with a force equal to the pressure of water multiplied by the area of the piston 13 in the one cylinder 10, which makes the first stage of the compression of the bale. During this upward  
 30 movement of the piston 13 in the cylinder 10 the other pistons being secured to the same cross-head have also been in process of elevation, or, in other words, have been following the movement of the piston working under  
 35 pressure, water flowing from the tank 24 through the pipes 27 and 37 and the check-valve 42 keeping the cylinders 10' and 10'' full of water under tank-pressure and thus keeping them in readiness for action when re-  
 40 quired. It will be understood that for the initial compression only enough water has to be pumped to work the cylinder 10, the idle cylinders using tank-water. As soon as this first stage of packing or compressing  
 45 is done the valve 31 is closed and the valve 34 opened, which applies the water under pump-pressure from the pipe 26 to the cylinders 10' and 10'', the cylinder 10 being then idle, merely moving upward as the two cylinders 10' and 10'' force up the platen, water  
 50 passing to cylinder 10 to keep it full from the tank by way of the pipes 27 and 36 through the check-valve 41. The valves 40 and 42 now operate to prevent the tank from receiving water from the pump, the valve 40 being  
 55 closed and the valve 42, being a check-valve, closing with pressure from the cylinder end of the pipe 37. The second stage of the compression is thus accomplished by two cylinders, or double the number of pounds pressure as is applied in the first stage, and the only duty required of the pump is to supply  
 60 water for two cylinders, the tank keeping the third one full for the third and final compression, for which the valve 31 is opened and all three of the cylinders and their pistons applied to the work of reducing the bale to

its final or ultimate thickness for packing in steamships for export or close packing for railway transportation. The bale is then tied  
 70 or retied and the valves 31 and 34 closed. To release the bale, the valves 39 and 40 are opened, which allows the weight of the pistons, platens, &c., to force the water in the cylinders to the tank 24 for use in the next  
 75 compression. After the pistons descend the bale is removed, the valves 39 and 40 are closed and the device is in position for a repetition of the operation.

If it is desired the pump 25 may take water  
 80 from the tank 24. This, however, might be objectionable on account of the heating of the water.

Having thus described my invention, what I claim as new, and desire to secure by Letters  
 85 Patent, is—

1. In a press, three cylinders forming a battery a single platen to which all of the cylinders are connected, a pump, a supply pipe leading therefrom to near the cylinders, short  
 90 pipes connecting said cylinders separately to said supply pipe, valves controlling the flow of water through said short pipes, a tank, a pipe 27 leading therefrom to near the said cylinders, short pipes connecting said cylinders  
 95 with said pipe 27, check valves in both of said short pipes, and a pipe which short circuits each of said check valves separately and valves adapted to control each short circuit independently of the other, substantially as  
 100 and for the purpose specified.

2. A press, consisting of four uprights tied together at their lower ends, a movable platen and motive power therefor, a dead platen consisting of several timbers bolted between  
 105 the upper ends of said uprights, metallic shackles arched over the top of said dead-platen and bolted securely to said uprights and blocks interposed between said dead-platen and shackles, substantially as and for  
 110 the purpose specified.

3. The three cylinders, each provided with a piston, and a pipe which connects it directly with the pump; a platen to which all of the pistons are connected; a pump, an elevated  
 115 water tank, and a pipe 27, provided with a valve 28, for connecting the pump and the tank; combined with the pipe 29, having the plug valve 31, and the check valve 30, the pipe 35, connected to two of the cylinders,  
 120 and provided with plug valve 34 and check valve 33; the pipe 36 connecting the pipes 29 and 27, and provided with a check valve 41; the pipe 37, connecting the pipes 27 and 35, and provided with the check valve 42; the  
 125 short pipe 38, connecting the two pipes 36 and 37 with the pipe 27; and the two valves 39 and 40, substantially as shown.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

FRANK JENNESS DUDLEY.

Witnesses:

J. D. STOKES,

B. L. HARRELL, Jr.