No. 710,166. Patented Sept. 30, 1902.

P. H. McVICAR.

DOOR CLOSER FOR HAY PRESSES.

(Application filed Aug. 26, 1901.)

(No Model.) 2 Sheets—Sheet 1.

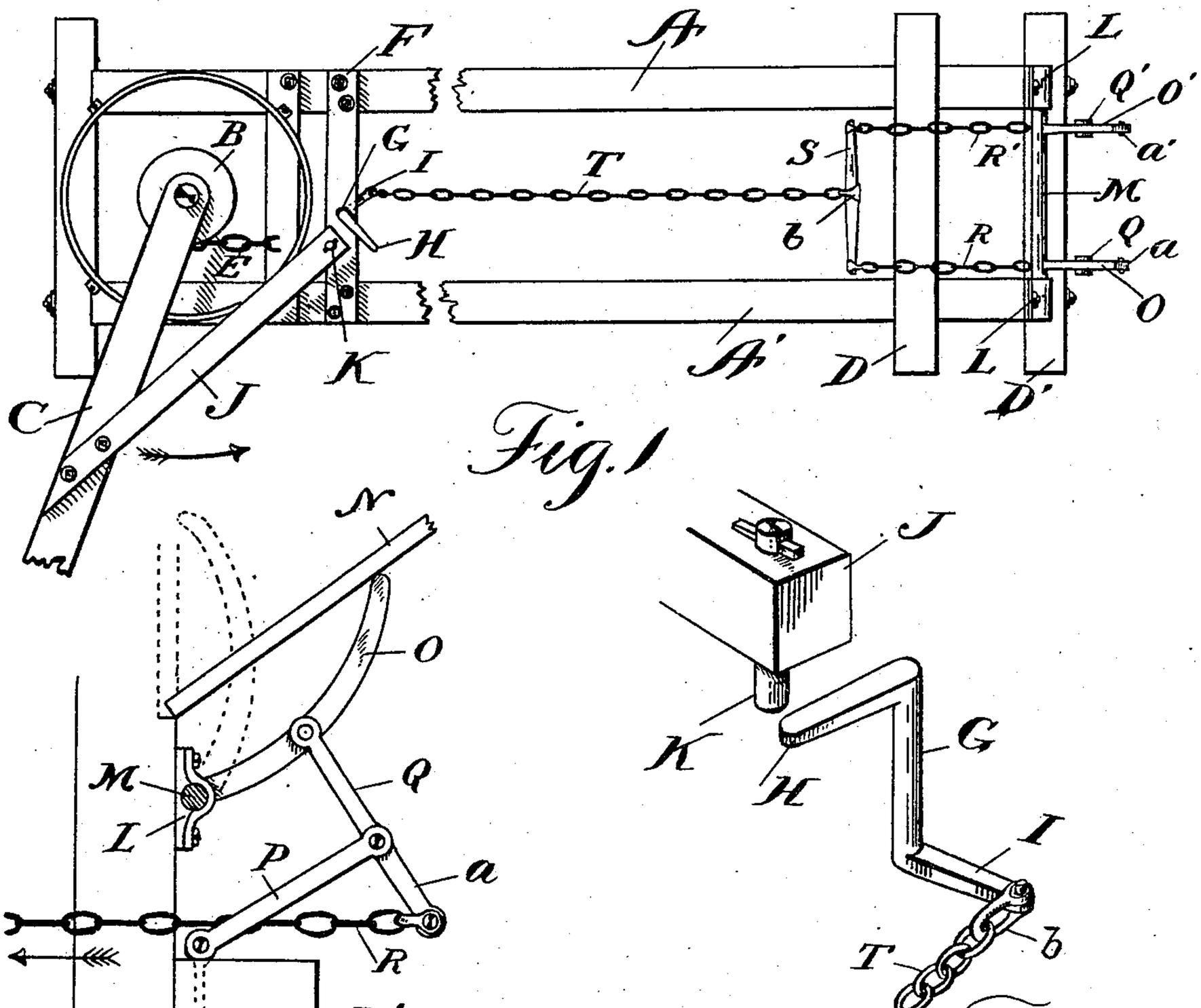

Fig. 1

Fig 2

Fig. 3

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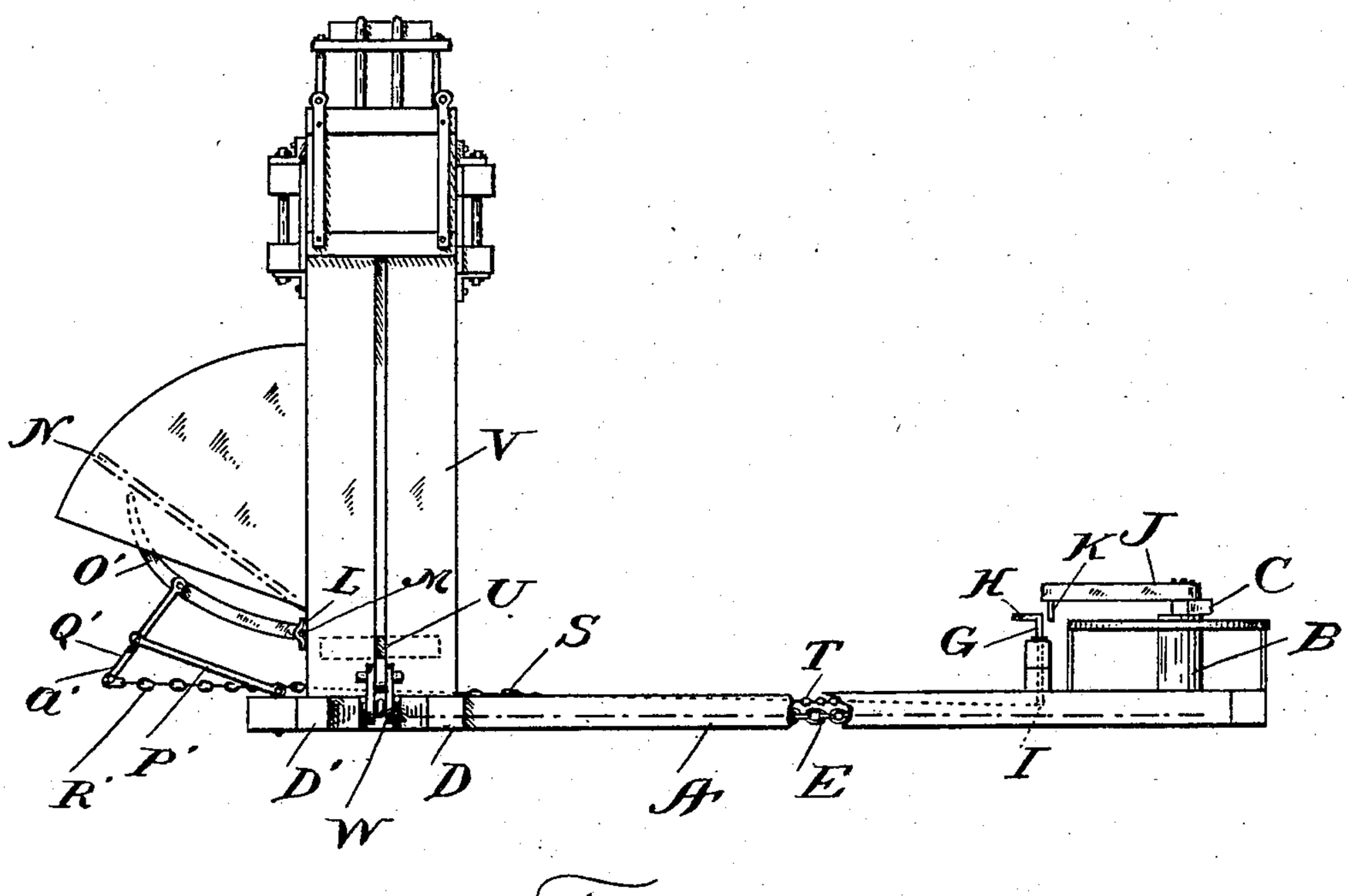

Fig. 4.

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UNITED STATES PATENT OFFICE.

PHILIP H. McVICAR, OF LIVERMORE, CALIFORNIA.

DOOR-CLOSER FOR HAY-PRESSES.

SPECIFICATION forming part of Letters Patent No. 710,166, dated September 30, 1902.

Application filed August 26, 1901. Serial No. 73,391. (No model.)

To all whom it may concern:

Be it known that I, PHILIP H. McVICAR, a citizen of the United States, residing at Livermore, in the county of Alameda and State of California, have invented certain new and useful Improvements in Door-Closers for Hay-Presses; 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.

This invention relates to improvements in hay-presses; and it has for its object to provide a device of this class which will possess superior advantages in the matter of general efficiency.

In the ordinary baling process the closing of the door as successive thrusts of the plunger compress the hay is usually accomplished by hand, while in my invention I have provided novel means for automatically doing the same work.

I have paid particular attention in the carrying out of my invention to the simplicity of the mechanism employed and the smoothness and ease with which the result can be obtained.

In the drawings hereunto annexed and constituting a part of this specification, Figure 1 is a top view of the foundation-framework of an ordinary toggle-lever vertical hay-press, my invention being shown positioned thereon. Fig. 2 is a side elevation of the combination of levers employed in the neighborhood of the door. Fig. 3 is a perspective view of the mechanism employed to transmit the necessary power from the main reach of the press to the combination of levers shown in Fig. 2. Fig. 4 is a side elevation of the complete press, showing the relative positions of the several parts of my invention.

Referring now to the above views by letter, A A′ represent two parallel foundation-timbers, at one extremity of which are firmly mounted the power-drum B and reach or sweep C, while the opposite ends support the cross-timbers D D′, which form the foundation for the vertical baling-chamber of the press V. The toggle-levers W of the baling-chamber are connected to the drum B by means of the chain E.

Hung in a suitable bearing on the cross-timber F and at a point between the parallel timbers A A′, but without the axis of revolution of the sweep C, is the shaft G, which is provided with the upper and lower crank-arms H and I, respectively.

Bolted to the sweep C and extending backward and outward therefrom is the arm J, which bears terminally the downwardly-projecting pin K. The upper arm H of the shaft G when in a position to be operated upon is directly in the path of the pin K.

Extending horizontally across the rear of the baling-chamber of the press and supported by means of suitable boxes L is the shaft M. Welded to this shaft M and curving upward until they reach the outer face of the ordinary hinged door N of the press are the arms O O′. Directly below the arms O O′ and essentially parallel thereto are the links P P′, the inner extremities of which are pivoted to the timber D′, while their outer ends are pivoted to bars Q Q′, the upper ends of the latter of which are pivoted to the arms O O′. The legs *a a′* of the bars Q Q′ extend beyond the links P P′ and are provided with a clevis and chains R R′. These chains R R′ after they have passed horizontally beneath and beyond the bottom of the baling-chamber are connected to opposite ends of the singletree S, the center portion of the latter being connected to the arm I on shaft G by means of the single chain T and clip *b*.

Now assuming that the required amount of hay has been fed through the open door N and that the remaining parts of my invention are in the relative positions shown, it is manifest that as the sweep C moves in the direction of the arrow in Fig. 1 the pin K will approach arm H and finally force it around. This operation will of course draw the chain T, singletree S, and twin chains R R′ along and with them the legs Q Q′ will travel toward the baling-chamber, and consequently force arms O O′ upward until they assume the position shown in dotted lines in Fig. 2, when the door N is completely closed ready for the thrust of the plunger U. On completion of the closing of the door the distance between the pin K and pivotal point of shaft G becomes sufficient to permit the arm H clearing itself from pin K, when the door N can be restored to its normal position ready

for a successive closing as the sweep makes another revolution.

It is a well-known fact that preparatory to successive feeds, which necessarily occur between successive thrusts of the plunger or follower, the door leading to the baling-chamber is thrown open, which in comparison to the closing of the door is an easy matter, as the latter can be accomplished only by the development of considerable power which not infrequently requires the combined effort of several men, and to accomplish this closing of the door and at a predetermined moment by automatically diverting the required power from that employed in operating the plunger is the prime object of the above construction.

I am aware that changes in the form and proportion of parts of the devices herein shown and described as an embodiment of my invention can be made without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes and alterations as fairly fall within the scope of my invention.

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

1. In combination with a baling-chamber, a plunger reciprocating therein, a hinged door opening to said chamber, a suitable sweep connected to said plunger, a series of toggle-arms connected to said chamber and said door, an arm in the path of and adapted to be operated by said sweep, a projection on said toggle-arms inclining away from said chamber, and a chain connecting said projection with said arm and adapted to draw said projection toward said chamber, said chain passing under said plunger, said arms extending below the path of said plunger, for the purpose set forth.

2. In combination with a baling-chamber, a plunger therein, a hinged door opening to said chamber, a suitable sweep connected to said plunger, a horizontal shaft beneath said door and formed with a plurality of projecting arms, a bar pivoted to each of said arms and connected to the body of the press by means of a pivoted link, a shaft operated by the revolution of said sweep, and an arm projecting from said shaft and connected to said bars by means of a suitable chain, said former arms being independent of but bearing against said door, all arranged substantially as set forth and for the purpose described.

3. In combination with a baling-chamber, a plunger reciprocating therein, a hinged door opening to said chamber, a suitable sweep connected to said plunger, a series of arms connected to said chamber and said door, a vertical shaft below said sweep, two crank-arms on said shaft, one of said crank-arms being in the path of said sweep and adapted to be operated thereby, while the other crank-arm is connected with said first-mentioned arms for the purpose set forth.

4. In combination with a baling-chamber, a plunger reciprocating therein, a hinged door opening to said chamber, a suitable sweep connected to said plunger, a series of toggle-arms connected to said chamber and said door, a secondary sweep at an angle to and secured to said former sweep, an arm in the path of and adapted to be operated by said secondary sweep, and a chain passing beneath said chamber and connected with said toggle-arms and said latter arm substantially as set forth.

5. In combination with a baling-chamber, a plunger reciprocating therein, a hinged door opening to said chamber, a suitable sweep connected to said plunger, a series of toggle-arms connected to said chamber and said door, a crank-arm in the path of and adapted to be operated by said sweep, a singletree interposed between said toggle-arms and said crank-arm and a connection between said singletree and said toggle-arms and said crank-arm for the purpose set forth.

6. In combination with a baling-chamber, a plunger therein, a hinged door opening to said chamber, a suitable sweep connected to said plunger, a horizontal shaft beneath said door and formed with a plurality of projecting arms, a bar pivoted to each of said arms and connected to the body of the press by means of a pivoted link, a shaft formed with a projecting arm and operated by a projection on said sweep, and a secondary arm projecting from said shaft and connected to said bars by means of a suitable chain, all substantially as described and for the purpose set forth.

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

PHILIP H. McVICAR.

Witnesses:

GEORGE PATTISON,

C. S. HOWE.