No. 772,790. PATENTED OCT. 18, 1904.

J. J. DAY.

BALING PRESS.

APPLICATION FILED APR. 8, 1904.

NO MODEL.

Fig. 1.

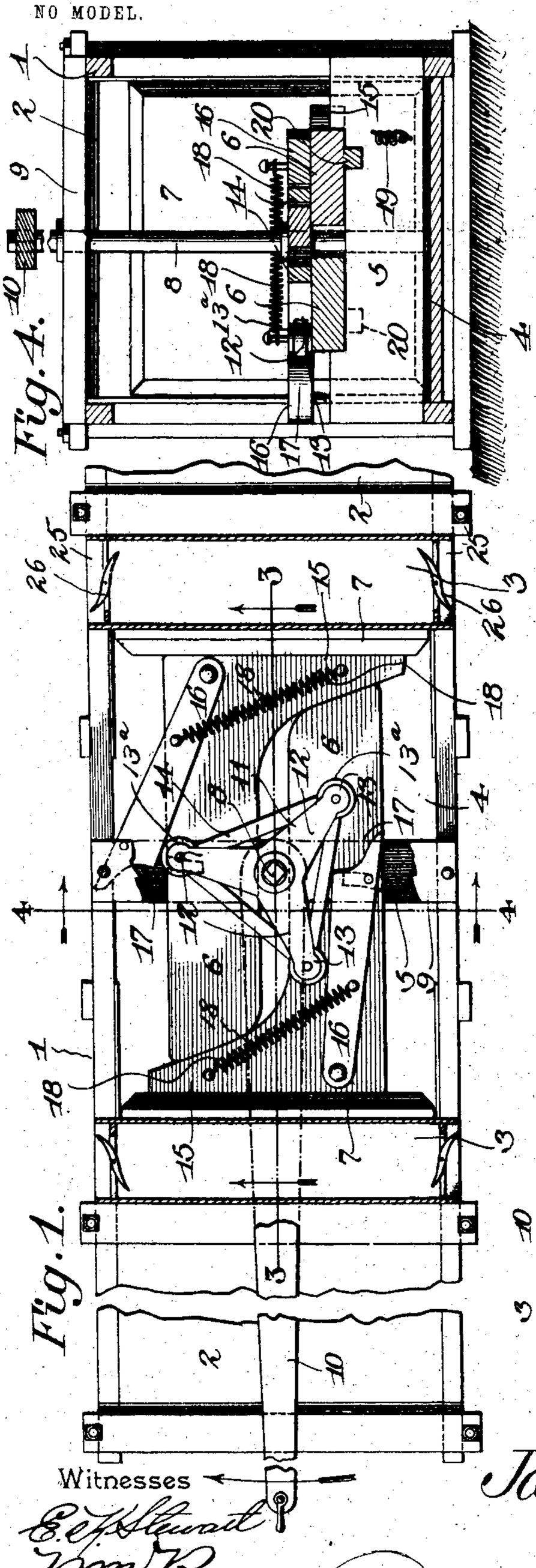

Fig. 2.

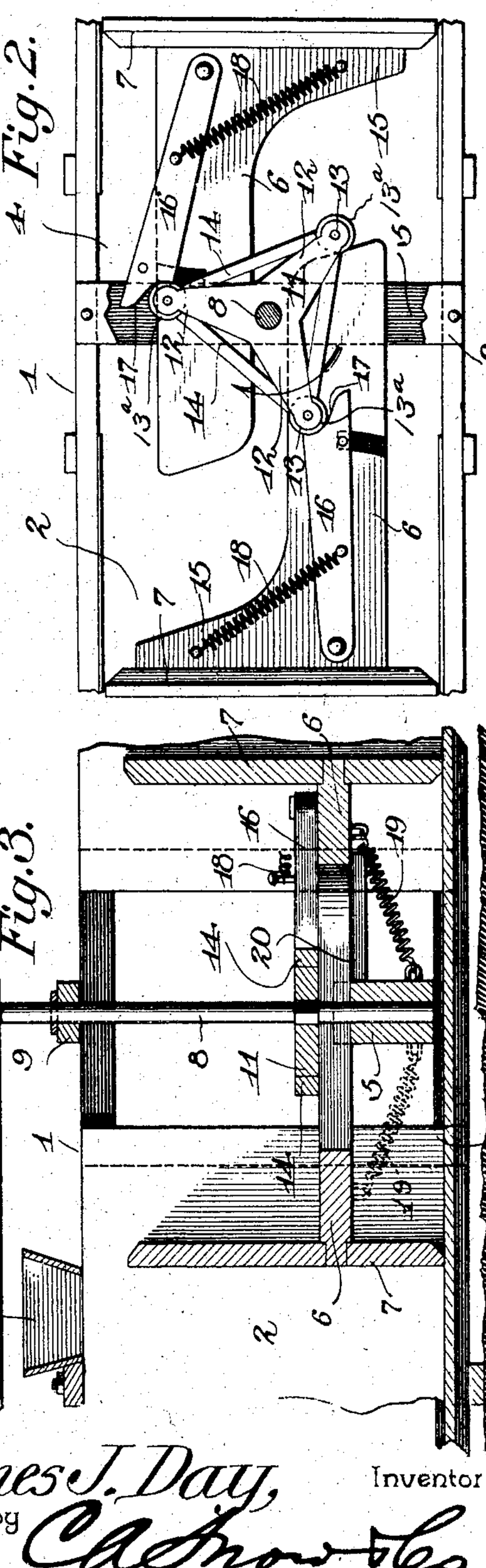

Fig. 3.

Fig. 4.

Witnesses

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No. 772,790. Patented October 18, 1904.

UNITED STATES PATENT OFFICE.

JAMES J. DAY, OF NASHVILLE, GEORGIA.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 772,790, dated October 18, 1904.

Application filed April 8, 1904. Serial No. 202,240. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. DAY, a citizen of the United States, residing at Nashville, in the county of Berrien and State of Georgia, have invented a new and useful Baling-Press, of which the following is a specification.

This invention relates to baling-presses, and more especially to that class of baling-presses which are known as "duplex" or "double-acting;" and it has for its object to construct a press of this kind which shall be simple, durable, and efficient in operation and in which the two plungers shall be actuated alternately by the action of a single cam or operating element mounted for rotation so that the resistance to the power applied shall be nearly equal at all stages of the operation of the press.

With these and other ends in view, which will readily appear as the nature of the invention becomes better understood, the same consists in the improved construction, arrangement, and operation of the parts, which will be hereinafter fully described, and specifically pointed out in the claims.

In the accompanying drawings there is shown a simple and preferred form of embodiment of the invention, it being understood, however, that I do not necessarily limit myself to the precise structural details herein exhibited, but reserve the right to such changes, alterations, and modifications as may be resorted to within the scope of the invention and without departing from the spirit or sacrificing any of the advantages of the same.

In said drawings, Figure 1 is a top plan view of a baling-press constructed in accordance with the principles of the invention, the operating mechanism being shown at rest. Fig. 2 is a top plan view of the operating mechanism, showing one of the plungers at the limit of its outward movement and the other plunger in its relative position. Fig. 3 is a vertical sectional detail view taken on the line 3 3 in Fig. 1. Fig. 4 is a vertical sectional detail view taken on the line 4 4 in Fig. 1.

Corresponding parts in the several figures are designated by like characters of reference.

The frame 1 and the baling-chambers 2 2 of the improved press are of ordinary construction, it being understood that a hopper 3 for feeding the material to be pressed is provided at the inner end of each baling-chamber and that the said baling-chambers are separated by a chamber 4, containing the operating mechanism.

5 designates a sill or supporting-beam disposed transversely in the chamber 4 and supporting the plunger-rods 6 6, carrying at their outer ends the plunger-heads 7 7. The plunger-rods 6 6 are spaced apart to admit between them the vertical shaft 8, which is stepped in the sill 5 and which has an additional bearing in the cross-beam 9 of the frame. Suitably connected to the upper end of the shaft is a sweep 10 of sufficient length to extend sufficiently beyond the discharge ends of the baling-chambers, and to this sweep draft may be applied. It is obvious, however, that the press, if desired, may be operated by power of any description and that when other than animal power is employed suitable means for the transmission of motion to the shaft 8 will be provided.

Secured upon the shaft 8 directly above the plunger-rods is a cam or driving member 11, which may be described as consisting of a hub or plate having an uneven number of equidistantly-spaced radial extending arms 12 of equal length, each of said arms being provided at its outer end with an approximately circular head 13. While it is to be understood that any desired uneven number of radial arms may be used, the preferred form illustrated in the drawings exhibits three such arms, which is the most feasible and practical number, for the reason that if the number were increased the stroke of the plunger would obviously be reduced. The arms 12 of the member 11 are connected by means of braces 14, disposed adjacent to the circular heads at the ends of said arms. This, again, is a preferred construction. It is obvious that the member 11 may consist of a triangular plate having circular heads or extensions at the corners thereof.

The plunger-rods 6, as previously described,

are spaced apart from each other and are consequently disposed at opposite sides of the longitudinal center of the press-box. Each of said plunger-rods is, however, provided with a lateral extension 15 in order that it may be securely connected with the plunger-rod. Pivotally connected with each of said plunger-rods is a pawl or pitman 16, having at its free extremity a cavity or recess 17, which is brought into operative engagement with the cam member 11 by means of a suitable spring 18. The plungers are also connected with the sill 5 by means of retracting-springs 19, and the under sides of the plunger-rods are provided with buffers 20, which by engaging with the sill 5 will prevent displacement of the plungers and also prevent injurious contact of the pawl members with the cam member by the action of the retracting-springs.

When in operation the shaft 8 is rotated, the circular heads 13 of the cam member will successively engage the cavities at the free ends of the pawl members or pitmen 16, and the plungers will thus be forced outwardly into their respective baling-chambers in which charges of material to be pressed have been previously deposited through the hoppers 3. By the time one of the plungers has completed its outward movement the other plunger will have started in an outward direction, when by the further rotation of the shaft the cam member passes out of engagement with the pitman of the plunger which has completed its stroke, said plunger being retracted by the action of the spring member 19, and the pitman of said plunger will pass into engagement with the head at the next corner of the cam member. In the meantime the other plunger moves outward to the completion of its stroke, which, however, is not finished until the first plunger has been again started in an outward direction. It follows from this construction and operation that the resistance to the power will be practically equal at all times and also that the operation of the press is continuous and uninterrupted as long as may be desired.

It will be evident that within the scope of the invention instead of the separate retracting-springs 19, one for each plunger, a single retracting-spring may be substituted, the ends of such spring being connected at suitable points with the stems of the two plungers so as to exercise draft or tension upon each in the direction of the center sill 5.

In the side walls of the press-chambers of my improved press I also provide slots 25, in which are pivotally mounted holdback-hooks 26, which are sigmoidally curved, presenting rearwardly-extending points within the press-box, which while they will admit of material being forced rearwardly into said box will swing upon their pivots, and consequently retard or prevent the material forced into the press-box from rebounding or returning when the plunger recedes. These holdbacks, it will be seen, will operate automatically without the use of springs or similar means.

It will be readily understood that the circular heads 13 of the cam member of the press do not necessarily bear directly against the pitmen 16. I prefer that they be provided with antifriction-rollers, as indicated in the drawings at 13^a, and this may obviously be done without departing from the spirit of the invention. These antifriction-rollers are not necessarily mounted in recesses in the circular heads 13 of the cam member, as shown in the drawings, but may equally well be journaled upon the upper or under sides of said heads, provided that they are disposed in the path of the plunger members to be actuated thereby.

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

1. In a duplex baling-press, oppositely-movable plungers having rods suitably spaced and supported, retracting means for said plungers, a shaft mounted vertically between the plunger-rods, pitmen mounted upon the rods and having cavities at their outer extremities, a cam member mounted upon the shaft having an uneven number of arms provided at their outer ends with heads adapted to engage the cavities of the pitmen, and springs to force the latter in the direction of the cam member.

2. In a duplex baling-press, oppositely-movable plungers having rods spaced apart, supporting means for said rods, retracting-springs connecting the rods with said supporting means, spring-actuated pitmen mounted upon the plunger-rods and having cavities at their outer ends, and a cam member mounted for rotation and provided with approximately circular heads adapted to successively engage the cavities at the ends of the pitmen.

3. In a duplex baling-press, oppositely-movable plungers having rods located adjacent to each other, a slight distance apart, and each extending in the direction of the opposite plunger, supporting means for said rods, buffers upon the under sides of the plunger-rods, retracting-springs connecting the plungers with the supporting means, a shaft stepped and mounted for rotation in such supporting means, a cam member upon said shaft having an uneven number of approximately circular heads, and spring-actuated pitmen connected pivotally with the plunger-arms and provided at their free ends with cavities for engagement with the ends of the cam member.

4. In a duplex baling-press, oppositely-movable plungers having rods spaced apart, supporting means for said rods, retracting-

springs for the plungers, spring-actuated pitmen mounted upon the plunger-rods having cavities at their free ends, a cam member having radiating arms provided with approximately circular heads adapted to engage the cavities at the outer ends of the pitmen, and guide-braces connecting the arms of the cam member.

5. In a baling-press, a baling-chamber having slotted sides and holdback members mounted pivotally in the slots, said holdback members consisting of sigmoidally-curved bodies having rearwardly-extending hook members within the press.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES J. DAY.

Witnesses:
J. D. LAUETT,
M. J. RINARD.