(No Model.) 2 Sheets—Sheet 1.

G. W. ARNOLD.

BALING PRESS.

No. 421,472. Patented Feb. 18, 1890.

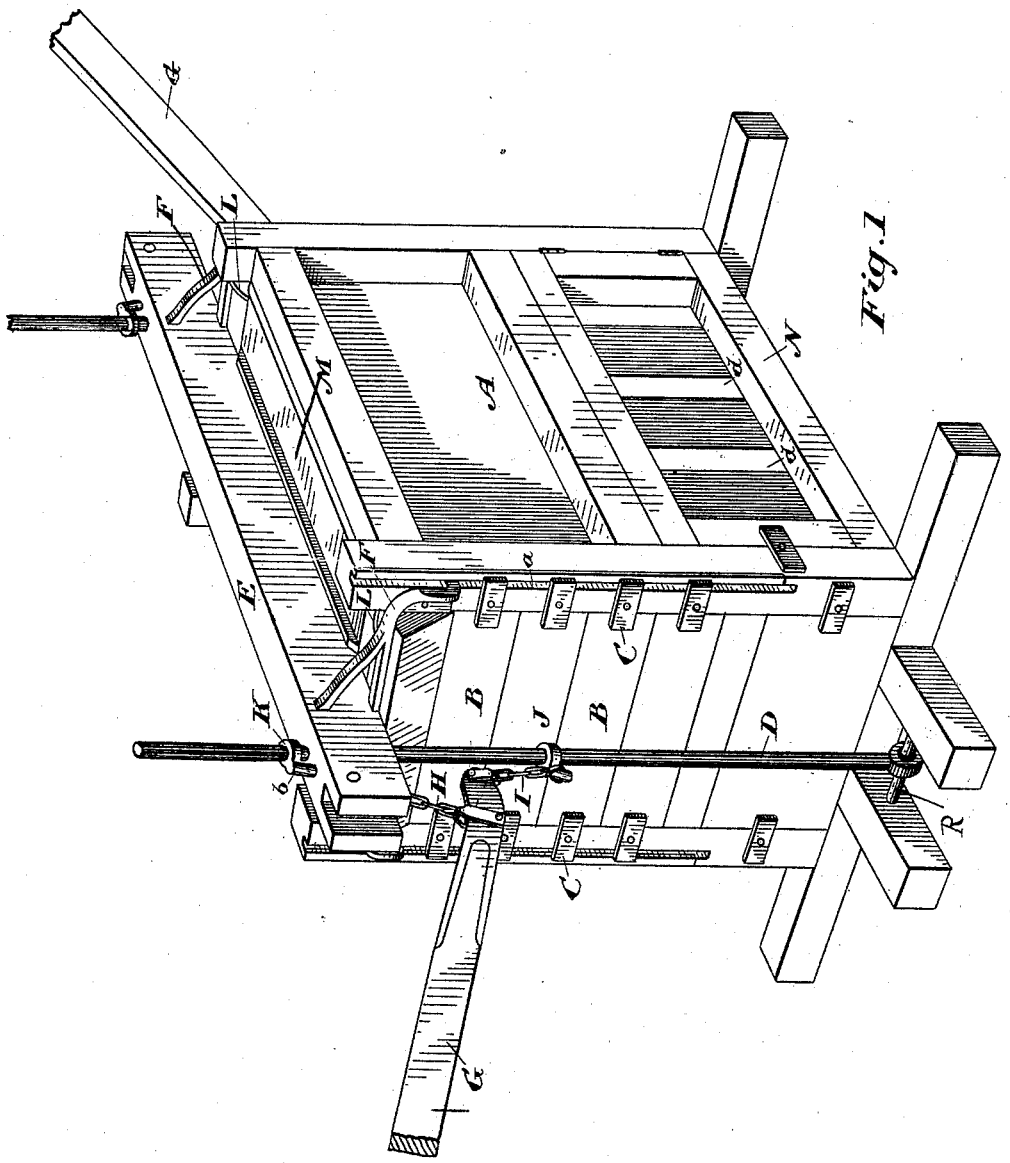

Fig. 1

Witnesses

J. Edw. Maybee

F. R. Cameron

Inventor

George W. Arnold.

by Donald C. Ridout & Co

attys

(No Model.) 2 Sheets—Sheet 2.

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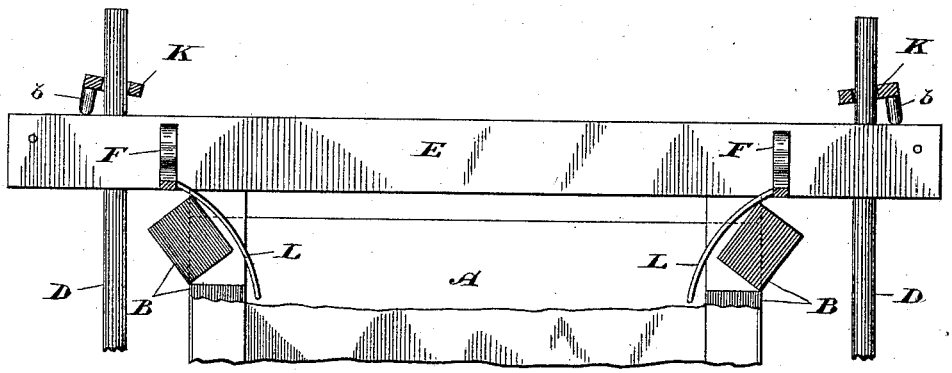

Fig. 2

Witnesses
J. Edw. Maybee
R. B. Cameron.

Inventor
G. W. Arnold
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UNITED STATES PATENT OFFICE.

GEORGE WASHINGTON ARNOLD, OF TORONTO, ONTARIO, CANADA.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 421,472, dated February 18, 1890.

Application filed August 30, 1889. Serial No. 322,461. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WASHINGTON ARNOLD, carpenter, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented a certain new and Improved Baling-Press, of which the following is a specification.

The object of the invention is to design a lever baling-press which will "take up" automatically at each stroke of the levers, so that when the press is once filled with hay it may be compressed into the desired bale without any attention other than that required to work the levers; and it consists, essentially, of a strong open-ended frame or box, at either end of which is pivoted or otherwise supported a vertical rod, the said rods passing through a cross-head extending across the frame. At each end of the cross-head a lever is pivoted on two chains, one chain being connected to the cross-head and the other chain to an arm extending from a movable collar placed on the said rod in such a manner that at each upward stroke of the lever the collar will fall down the rod and take a fresh grip on the rod upon the next downward movement of the lever. The sides of the frame immediately below the cross-head are closed by a series of blocks or boards securely held in position by strong buttons. Arms attached to the cross-head and forming guides for the same are fitted into grooves made in the corner-posts of the frame, and are designed to act upon each pair of buttons holding the narrow blocks or boards, turning the said buttons on their pivots, leaving the particular block or board free to be pushed out by a spring-finger attached to the cross-head or arms extending therefrom, the whole being otherwise constructed substantially as hereinafter more particularly explained, and then definitely claimed.

Figure 1 is a perspective view of my improved press as it will appear in operation. Fig. 2 is a detail of part of the press on a larger scale.

A represents a strong frame, in which the bale is compressed. This frame consists of two sides and a bottom, the other two sides being closed by a series of narrow boards or blocks B, each of which is securely held in position by a pair of buttons C, which are pivoted on the corner-posts A′ of the frame. Opposite each of the sides thus closed I place a vertical rod D, and connect the two rods together by a cross-head E, which is fitted loosely on the said rods. These rods are very loosely fitted on short cross-rods R, so as to be capable of swinging toward the back of the press, and thus carry the cross-head E clear of the press-box when said cross-head has been raised high enough on the rods D. Two arms (marked F) are fixed to the cross-head E, and their ends are shaped so as to fit into vertical grooves *a*, made in the corner-posts of the frame. A lever G is connected to each end of the cross-head E by a chain H and also by a chain I to an arm or projection formed on the sleeve J, which is movably fitted onto the rod D, the said chains being connected to the lever at different points, so that the chain I acts as a fulcrum for the lever while the chain H is drawing down the cross-head. On each rod D, immediately above the cross-head E, I place a sleeve K, having an arm or projection *b*, which rests upon the top of the cross-head, as indicated. From each of the arms F project spring-fingers L, which extend over the boards or blocks B.

Having now described the general construction of the machine, I shall proceed to explain briefly its operation.

The cross-head E is first raised to the top of the rods D, so as to lift the arms F clear of the vertical grooves *a*, when the cross-head E may be pushed on one side, the rods D being loose on the cross-rods R. The press is then filled with hay and the follower M placed on top of the hay, when the cross-head E is brought back until the rods D are in a vertical position. The ends of the arms F are then inserted in the grooves *a* and the cross-head E laid on top of the follower M. The levers G are then worked in the ordinary way, and, owing to the connection between the levers G through the chains H and I with the cross-head E and vertical rods D, each downward movement of the levers will draw down the cross-head E, compressing the hay into the frame A in proportion to the said movement. As the cross-head is thus moved down the sleeves K, resting on top of it, slide down the rods. When the levers G are raised to

secure a fresh grip, the expansion of the hay in the press pushes the cross-head E upwardly; but as this upward pressure on the cross-head E acts against the arms or projections *b* on the sleeves K the said sleeves are tilted, so as to cause each to grip its respective rod, thus holding the cross-head E stationary. The upward movement of the levers G also loosens the tension on the chains, permitting the sleeves J to slide down their respective rods, where they take a fresh grip when the levers G are once more pressed down. In this way each downward movement of the levers compresses the hay into the frame A, and each upward movement moves the fulcrums of the levers downwardly. In this manner the hay is gradually compressed into a bale of the required size.

As the narrow blocks or boards B would interfere with the downward movement of the cross-head E, I arrange the buttons C so that they will lie across the path of the arms F. As the cross-head E is forced down, as described, the ends of the arms F, coming in contact with the buttons C, turn the said buttons on their respective pivots, so as to move them clear of the ends of the narrow boards or blocks B, which they hold in position, thus leaving the respective blocks free to be pushed out of place by the action of the spring-finger L. In this way the narrow boards or blocks B are thrown out in pairs to make room for the downward movement of the cross-head E, and the whole operation is accomplished automatically, as described, by the mere upward and downward movements of the levers G.

When the hay is compressed into a bale of the desired size, the binding-wires are slipped through the grooves *d* and the bale tied together in the ordinary way, when the door N may be opened and the bale withdrawn.

What I claim as my invention is—

1. In combination with the frame of a press having vertical grooves *a*, a cross-head E, the vertical rods D, loosely fitted in the same, the sleeves K, loosely fitted on the rods, each having an arm or projection *b* resting on top of the cross-head E, the arms F, fixed to the cross-head E and having their ends fitted into the vertical grooves *a*, the pivoted buttons C, constructed to extend across their respective vertical grooves *a*, the levers G, chains H and I, and sleeves J, arranged substantially as and for the purpose specified.

2. In combination with the frame of a press having vertical grooves *a*, a cross-head E, the vertical rods loosely fitted in the same, the sleeve K, loosely fitted on the rods, each having an arm or projection *b* resting on top of the cross-head E, the arms F, fixed to the cross-head E and having their ends fitted into the vertical grooves *a*, the pivoted buttons C, constructed to hold the boards or blocks in position, the spring-fingers L, fixed to the cross-head E, the levers G, chains H and I, and sleeves J, substantially as and for the purpose specified.

Toronto, August 21, 1889.

GEORGE WASHINGTON ARNOLD.

In presence of—
CHARLES C. BALDWIN,
W. G. MCMILLAN.