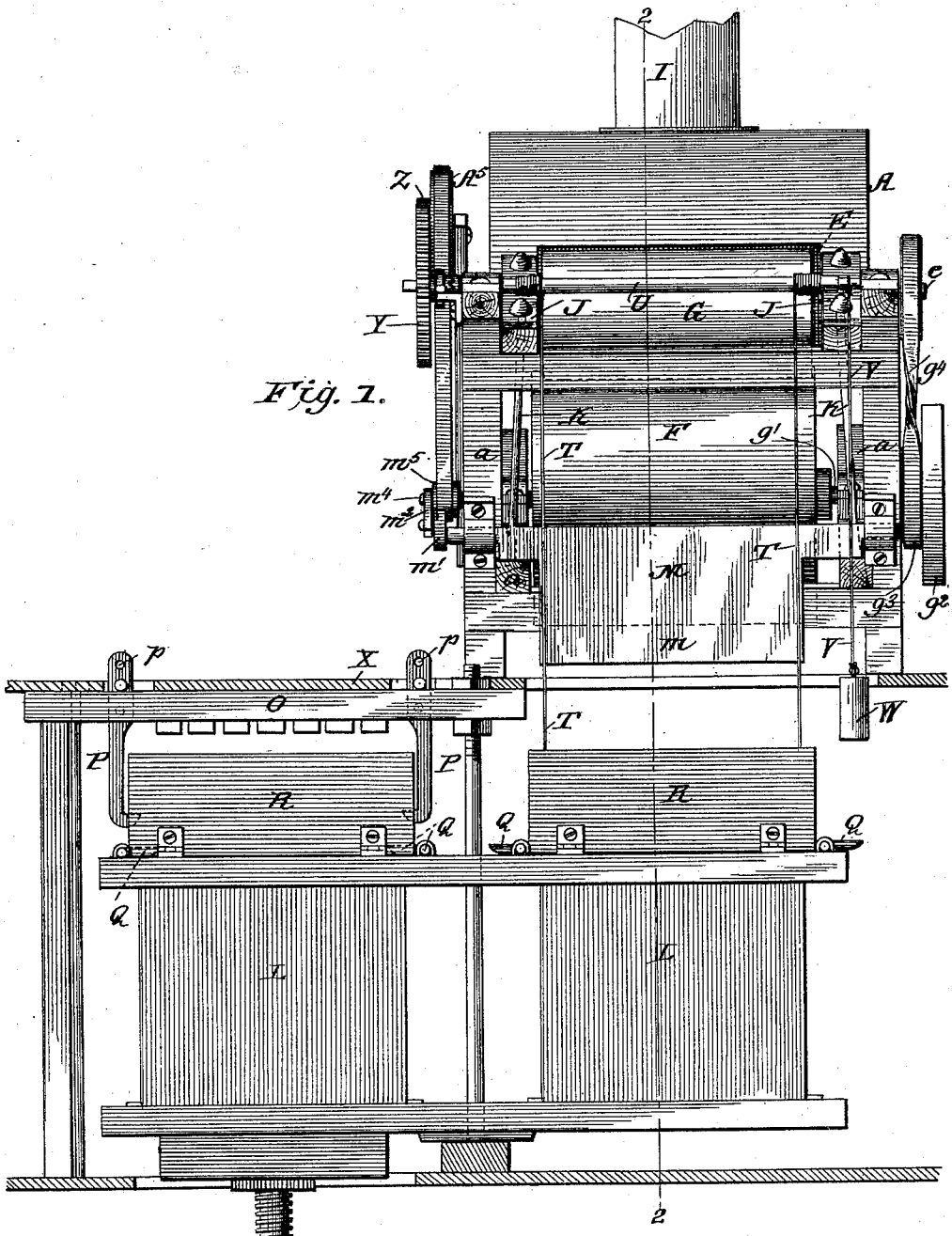
(No Model.) 3 Sheets—Sheet 1.

# E. D. CARTER.

## COTTON BALING APPARATUS.

No. 474,293. Patented May 3, 1892.

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

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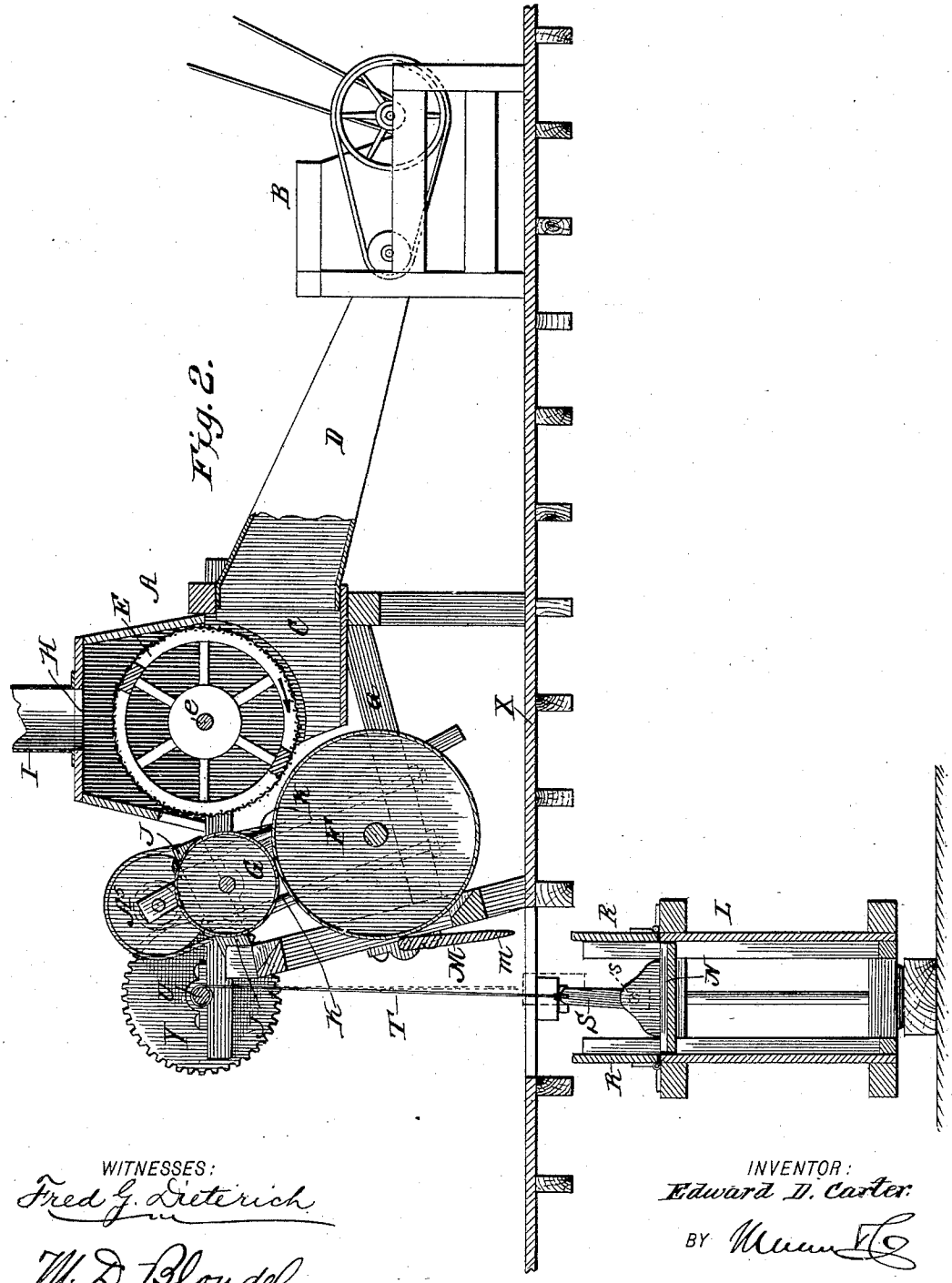


Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

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## COTTON BALING APPARATUS.

No. 474,293. Patented May 3, 1892.

Fig. 3.

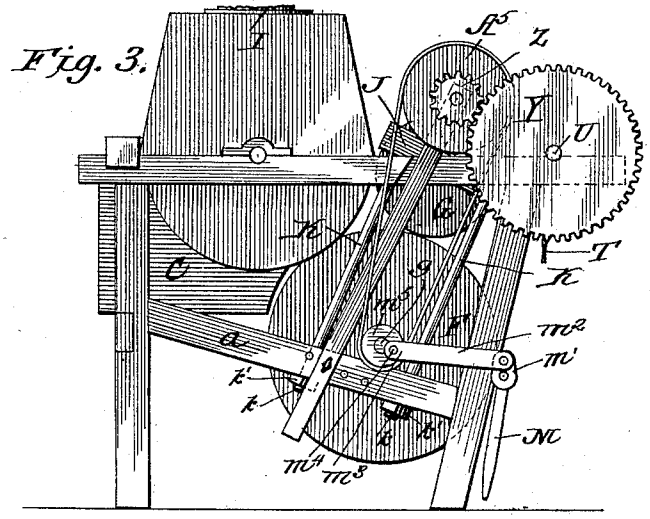



Fig. 4.

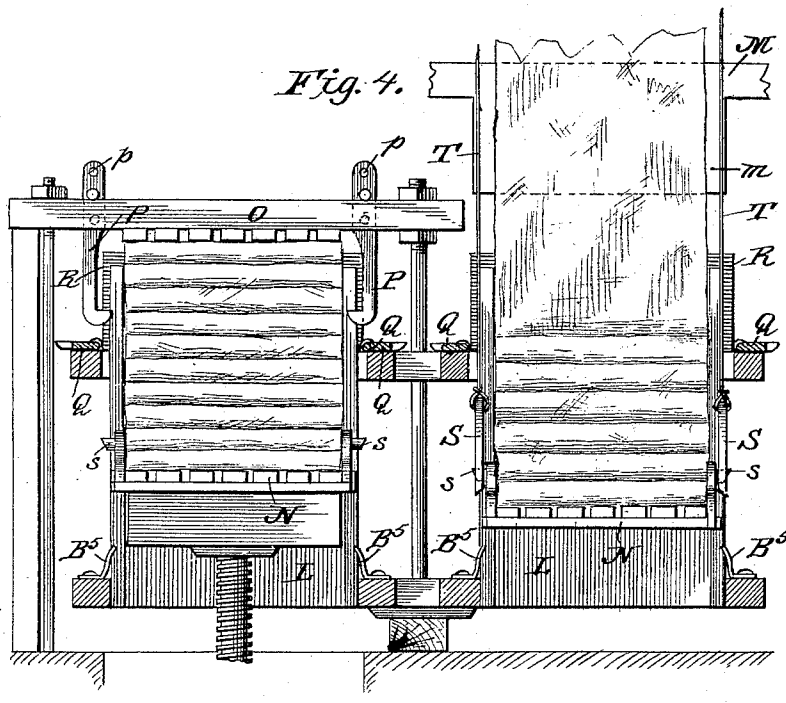
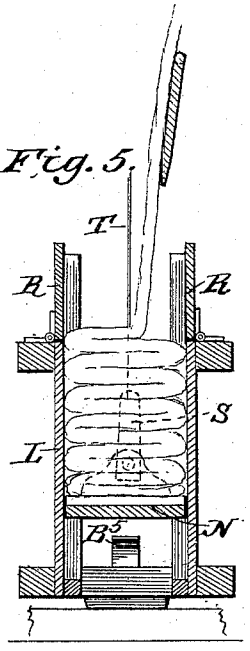



Fig. 5.

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# UNITED STATES PATENT OFFICE.

EDWARD D. CARTER, OF CELESTE, TEXAS.

## COTTON-BALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 474,293, dated May 3, 1892.

Application filed September 12, 1891. Serial No. 405,545. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD D. CARTER, residing at Celeste, in the county of Hunt and State of Texas, have invented a new and useful Cotton-Baling Apparatus, of which the following is a specification.

My invention relates to that class of baling-machines in which the cotton is first formed into a continuous sheet or batting and then compressed by the ordinary power appliances; and it has for its object to provide an apparatus of this character wherein the condensing and bat-forming devices will condense and press the lint-cotton so close that the spring of the cotton is broken, thereby avoiding the necessity of providing additional compressing-rollers intermediate the condenser and the press-box.

A further object of my invention is to arrange a condenser in such a manner as to save room in the gin-house and to provide means for carrying off the dust and air made by the gin and condenser to the outside of the building.

Finally, my invention has for its object to provide an apparatus in which the baling operation may be rendered continuous, which will operate to bale the cotton in a cheap and economical manner and by which the bales can be compressed to the required density without the necessity of sending them to another point to be further compressed by a more powerful cotton-compress.

With these general objects in view and others hereinafter set forth my invention consists in the peculiar combination and novel arrangement of the several parts hereinafter fully described in the annexed specification, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved baling apparatus located in a proper position in a gin-house. Fig. 2 is a transverse section of the apparatus, taken on the line 2 2, Fig. 1. Fig. 3 is a side view of the condenser. Fig. 4 is a longitudinal section of the press-box, and Fig. 5 is a transverse section of the same.

In the accompanying drawings, in Fig. 1 I have shown my improved apparatus properly located in a gin-house in connection with an ordinary gin.

In describing my invention I will for the sake of clearness begin at the point where the cotton lint enters the condenser from the gin and follow the movement of the lint, describe the means and operation of converting it into batting, and finally describing the quick, continuous, and effective means for baling it. By reference to the aforesaid Fig. 1 it will be noticed that the condenser A is arranged upon the second floor of the gin-house and in close connection with the gin B, such condenser having a receiving trough or chamber C in one end, with which connects the flue D from the gin B. The condenser A consists of a perforated cylinder E and two smooth-metal cylinders F and G, which receive the lint-cotton from the gin and forms it into a close bat. These cylinders or rolls are arranged in the manner most clearly shown in Fig. 2 of the drawings, by reference to which it will be seen that the large perforated or screen cylinder is located just above and in advance of the large metal cylinder F and at the mouth of the gin-flue D, said cylinder being boxed in at the top, back, and sides, as shown, the top of the box having an opening H, with which connects a flue I, which extends up through the top of the gin-house, as shown, such flue I serving to carry off the dust and air made by the gins and discharge the same to the outside of the gin-house. The cotton lint is carried by the roller or cylinder E (which revolves in the direction indicated by the arrow) under and between it and the large metal roller F, the said lint being by such rollers E and F, with the aid of the small metal roll or cylinder G, formed into a bat, which is thereby condensed as close as it is possible for the lint to be condensed without injuring the fiber of the cotton. The roller G is located on the top of the roller F and just to the rear of the cylinder E and is held for vertical adjustment relative to the roller F, it being journaled in blocks J, secured to the upper ends of rods K K, the lower ends of which pass through the diagonally-arranged side beams *a* of the condenser-frame, their lower end being screw-threaded, as at *k k*, to receive the adjusting-nuts *k' k'*, which can be adjusted on such ends to regulate the pressure of the roller G upon the roller F so as to form as close a bat as may be desired. The

condenser A has its discharge end disposed over an opening in the floor X at a point just above one end of the press-box L, which is located on the lower floor of the gin-house, as shown.

At a point where the batting is discharged from the condenser a lapper or folding device M is journaled, which lapper has a downwardly-extending member $m$ of a width substantially that of the cotton-bat, such member being arranged to be vibrated over the opening X and the cotton-receiving chamber in the press-box whereby to lap the cotton in such chamber, one of the journals of the lapper M being provided with a crank-arm $m'$, with which connects one end of a pitman $m^2$, the other end $m^3$ of which connects with a wrist-pin $m^4$ on a disk or pulley $m^5$, formed on one of the journals $g$ of the cylinder or roller G, the opposite journal $g'$ having a drive-pulley $g^2$ and a smaller pulley $g^3$, which is connected by a crossed belt $g^4$ with a pulley on the shaft $e$ of the cylinder E, as shown.

The press-box L, before referred to, is of the kind known as "swinging press-boxes," having dual cotton-chambers, such box being hinged in the center, so that when one chamber is filled with batting it can be swung around over a screw or other power platen and the bale pressed and tied, while the other chamber is being filled with lint. In the construction shown I have provided such a press-box with certain additional details of mechanism, whereby a bale can be formed the more quickly, effectively, and of greater uniformity than is ordinarily the case, such mechanism, in connection with the bat forming and lapping devices, producing, as it were, a complete and finished bale compressed to the required density and ready for the market. In each of the cotton-chambers is arranged a follower-block N, which is pressed up by the platen of the screw or other power when the bale is being compressed.

In operation after the receiving-chamber has been filled with the folded batting the press-box is quickly swung around, so that the filled chamber will be disposed over the power devices and under the fixed platen or cross-head O and the empty chamber under the lapper. Now while fresh cotton is being fed to said empty chamber power is applied, and the follower-block in the other chamber is pushed up, compressing the cotton and raising up until it engages latch-fingers P, hung from the cross-head O, which serve to catch under the follower and hold it and the pressed cotton while it is being tied, such fingers having a number of apertures $p$ $p$, whereby they can be quickly adjusted, so that a large or small bale may be formed. After the follower-block is caught by such hooks and during the time in which the bale is being held the power devices are reversed and run down, so that no time will be lost while the power is run down.

In all other presses of this class, so far as I know, the bale is held in position by the power-platen during the time it is being tied. This is objectionable, as it leaves the workmen in idleness during the time the power is being run down. After the bale is tied the hooks or fingers P are knocked from under the follower, which drops onto pivoted latches Q, journaled at the edges of the cotton-chambers, where it is held. The bale is then shoved out over one of the hinged top sections R of the box. At this time the other chamber or box will be again filled with cotton-batting. The box is then swung to bring the empty chamber under the lapper and the filled chamber over the power-press, the lapper immediately folding the cotton upon the follower, which is held up by the latches before referred to. After the box has been swung into the last-stated position the follower under the lapper is connected by its short lateral pins $s$ $s$ with strap members S, secured to the ends of cords T, wound about a shaft U, journaled transversely over the rear or delivery end of the condenser, as shown, upon which are also wound cords V, having weights W on their lower ends. After the follower is secured to the metal straps S, as stated, the latches Q are swung from under the followers, and it is then permitted to gradually fall down into the cotton-box, such movement being governed by a gear Y on the end of the shaft U, which meshes with a gear Z on a pulley $A^5$, which is belted with the pulley $m^5$, as shown. The speed in which the follower should fall can be readily governed by the size of gears Y and Z. By this construction it will be observed that as the condenser operates the shaft U will be slowly turned, thereby unwinding the cords T and allowing the follower to lower, and at the same time winding up the weighted cord V. When the follower has about reached its lowermost limit, the straps engage pawls $B^5$ on the bottom of the press-box, which disconnects them from the follower, and at this time the shaft is thrown out of gear with the drive mechanism, which allows the weights to drop and rotate the shaft in a reverse direction, thereby raising the straps out of the press-box.

From the foregoing description, taken in connection with the drawings, the complete operation of my improved baling apparatus will be readily understood.

It will be noticed that by my improved arrangement of the condenser the cotton is condensed so close that the spring of the cotton is broken and it does not require being conveyed to additional rollers or other compressing machinery.

Heretofore machines of this character have formed the cotton into a soft bat, making it necessary to convey it to other machines to take the spring out of it before it is put into the press-box or subjected to the heavy machinery of the compress after it is put into a bale.

Having thus described my invention, what

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

1. In a baling-press, in combination with a frame or support provided with a cotton-receiving chamber, a condensing-cylinder mounted in such chamber, compressing-rolls of different diameters mounted on such frame, such rolls and compressing-cylinder arranged relatively, whereby the condensed cotton is partially compressed between one of such rolls and the cylinder and whereby such partially-compressed cotton is fed between the pressure-rolls for its final compression, a baling mechanism arranged to receive the compressed batting from the rolls, and means for operating the rolls and condenser-cylinder, substantially as and for the purpose described.

2. In a baling apparatus of the kind described, a combined condensing and compressing mechanism, comprising a condensing-chamber formed with a discharge-opening, the condensing-cylinder E, operating in such chamber to condense the cotton and feed it to the discharge-opening, the compressing-roll F, disposed at the mouth of such discharge-opening and arranged under the cylinder E, the said cylinder and roll operating to draw the condensed cotton through the discharge-opening of the chamber and partially compress it, the adjustable roll G, mounted over the roll F, such rolls, in connection with the roll F, operating to finally press the cotton to form the bat, and a baling mechanism arranged to receive the bat from the rolls F and G, all arranged as and for the purpose described.

3. In a baling apparatus, substantially as described, the combination, with the condenser A and the shaft U, journaled on the discharge end thereof, of the swinging press-box L, having dual chambers, the followers N, having pin projections *s s*, the straps S, arranged to be connected to said pins, the cords T, wound about said shaft U, and the gear connections between the shaft U and the drive mechanism on the condenser, whereby the follower is automatically lowered as the condenser operates, as and for the purpose described.

4. In a roller-compress-baling apparatus, the combination, with the condensing and lapping mechanism and a press-box to receive the cotton-bat from the condensers, of a follower operating in the press-box, an automatic feed mechanism connected with and operated by the condenser mechanism and connected with the follower to automatically lower the follower into the press-box as the cotton-bat is formed and fed onto such follower, substantially as and for the purpose described.

5. In an apparatus for the purpose described, the combination of the swinging press-box L, formed with dual cotton-chambers, each forming alternately the receiving and pressing chambers, the fixed platen or cross-head O, the followers N, having lateral projections *s*, the pawls $B^5$ in the lower edges of the cotton-chambers, with the condenser A, having its discharge end disposed over the receiving-chamber of the press L, the shaft U, journaled in said end, the gear and belt devices for operating the condenser and the shaft U, and the cords T, wound upon the shaft U, having catch members S arranged to engage the projections *s s* on the follower N and the weighted cords W on the shaft U, all arranged substantially as and for the purpose described.

6. In a baling apparatus, substantially as described, the combination, with the condenser-frame, the shaft U, journaled therein, the cords T T, and the straps S, of the swinging press-box L, the fixed platen O, the hook-fingers P, the latches Q, the followers N, arranged to be supported in their upper position on said latches Q and to be detachably connected with the straps S, all arranged as and for the purpose described.

7. In a baling apparatus, the combination, with the baling mechanism arranged substantially as shown and described, of the combined condensing and compressing mechanism, consisting of the frame provided with a condensing-chamber C, a condensing-cylinder E, mounted therein and having its rear portion projected beyond the discharge end of such chamber, the large pressure-roller F, disposed below the cylinder E and arranged to receive the condensed cotton as it leaves the chamber C, the adjustable pressure-roll G, mounted over the roll F for contact therewith, the lapper M, mounted in front of the roll F, and means for operating the rolls, cylinder, and lapper, substantially as shown, and for the purpose described.

EDWARD D. CARTER.

Witnesses:
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J. A. SHIELDS.