

No. 677,562.

Patented July 2, 1901.

F. B. COMINS.
PNEUMATIC PICKER CHECKING DEVICE.

(Application filed Jan. 14, 1901.)

(No Model.)

Fig. 1.

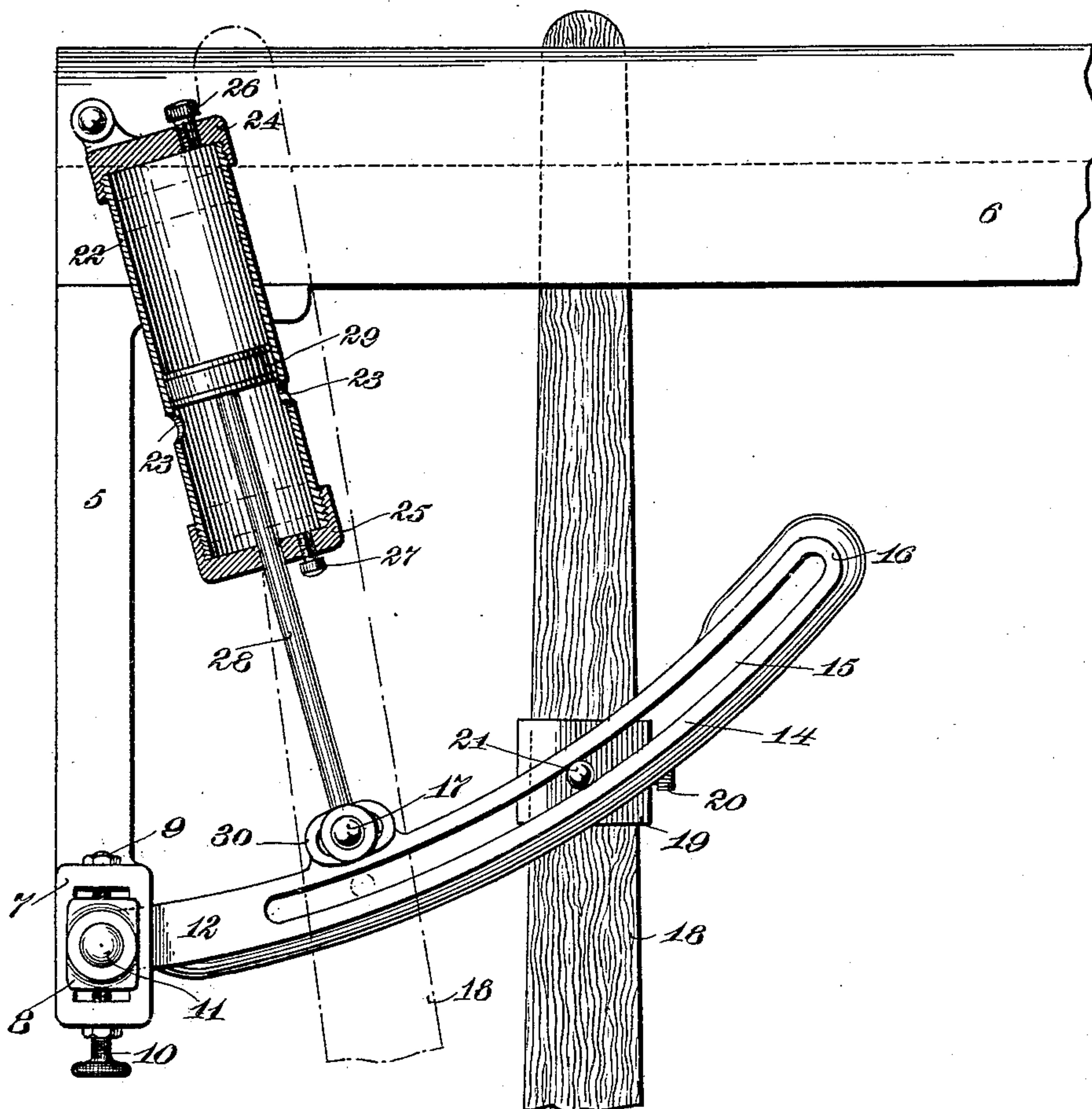
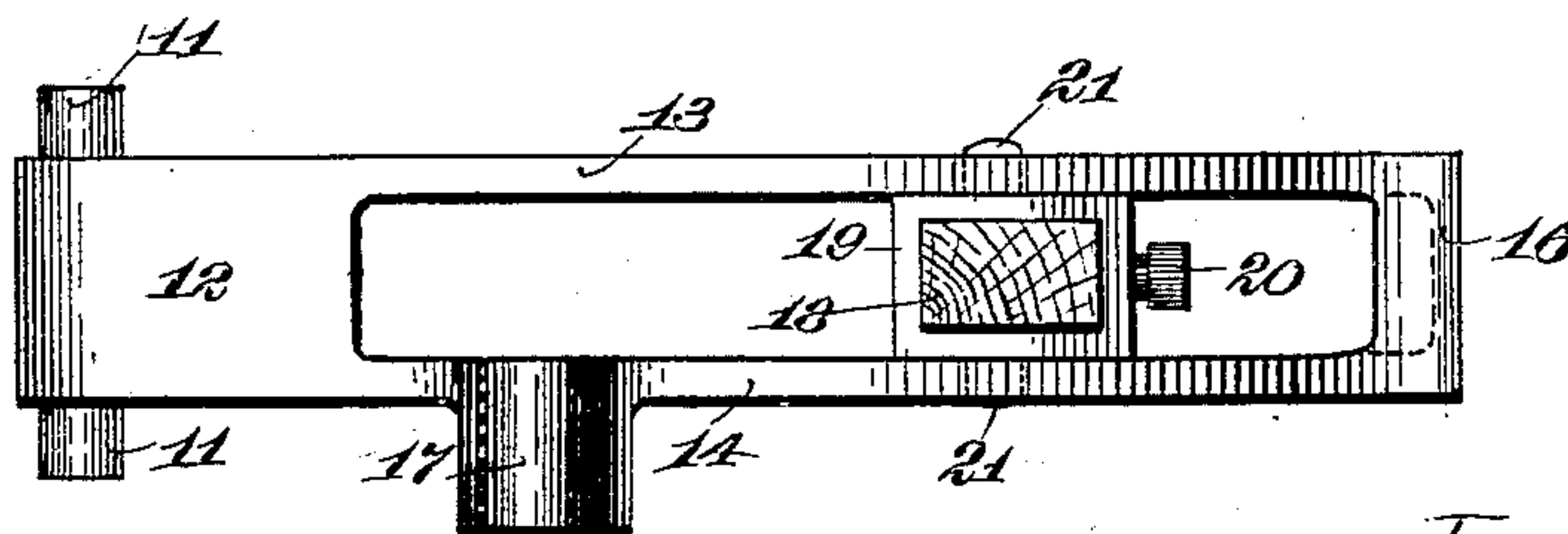


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

FRANK B. COMINS, OF SHARON, MASSACHUSETTS.

PNEUMATIC PICKER-CHECKING DEVICE.

SPECIFICATION forming part of Letters Patent No. 677,562, dated July 2, 1901.

Application filed January 14, 1901. Serial No. 43,118. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. COMINS, a citizen of the United States, residing at Sharon, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Pneumatic Picker-Checking Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention has reference to improvements in pneumatic checking devices for picker-staffs of looms.

15 One object of the invention is to check the movement of the picker-staff at both ends of its throw.

Another object of the invention is to so construct a pneumatic checking device for looms that the picker-staff may move freely through its predetermined limit of throw and 20 be checked at the ends thereof.

Another object of the invention is to so construct a duplex-acting pneumatic check for picker-staffs that the compressor may be connected in positive operative relation to 25 the picker-staff.

The invention consists in an air-chamber, an air-compressor therefor, and operative connections between the compressor and the picker-staff.

30 The invention also consists in the duplex pneumatic check, in the means for compressing air therein, and in the connections between the compressor and the picker-staff.

The invention also consists in such other 35 novel features of construction and combination of parts as shall hereinafter be more fully described, and pointed out in the claims.

Figure 1 represents an elevation, partly in section, of the improved checking device connected with parts of a loom. Fig. 2 represents a plan view of the operating-lever and the connections between the same and the picker-staff.

Similar numerals of reference designate 45 corresponding parts throughout.

In ordinary construction a picker-staff is mounted to swing in a slot of the loom-lay under the impulses of driving mechanism to deliver shuttle-driving blows and is returned 50 to the initial point of action by retracting-springs and strap connections, the recovery

and return movement of the staff being delayed until the momentum of the staff derived from the driving action has been overcome by the retractive efforts of springs. 55 The return movement of the staff being extremely sharp and sudden under the strain of the springs results in the sudden striking of the picker-staff against any stop or obstruction at the initial point of action and 60 the rebounding of the staff, thus causing delay and often interfering with the shuttle approaching the staff.

While the free movement of the staff under the action of the driving mechanism and 65 the return to the point of initial action should not be obstructed, it is apparent that all waste motion of the staff should be prevented and that it should be seated at the point of initial action without the usual sudden 70 jar and rebound.

In carrying my invention into practice I provide a bracket 5, which may be secured to the loom-lay 6 beneath the shuttle-box and furnished with slotted fork-arms, as 7, 75 in which journaled boxes, as 8, are adjustably secured by set-screws, as 9 and 10. Journaled in the bearings of the boxes, as 8, are the pivots 11 of the actuating-arm 12, this arm being formed as a frame having the 80 curved side plates 13 and 14, furnished with slots, as 15, and connected at the free ends by the cross-piece 16, the plate 14 having also the extension-pivot 17, the length of which depends on the location of the axis of the 85 pneumatic check.

Adjustable on the staff 18 is the box 19, provided with the securing-screw 20 and having the pivots 21 21, which travel in the curved slots, as 15, of the the actuator-arm 12 to 90 swing the same on its pivots as the staff moves back and forth.

On the back of the lay 6 or to some convenient support moving therewith is pivotally mounted the cylinder 22, having the permanently open vents 23 23 and provided with 95 the ends 24 and 25, perforated to receive the adjustable vent-screws 26 and 27. The end 25 is also axially perforated to receive the piston-rod 28, having the head 29, working in 100 the cylinder, and the slotted end 30, working on the pivot 17 of the actuator-arm plate 14.

When the staff 18 occupies the position shown in broken lines in Fig. 1, the piston-head 29 will be at the upper end of the cylinder 22 and the forward movement of the picker-staff under the action of the driving mechanism will cause the downward swinging of the actuator-lever 12 by the pins 21 traveling in the slots 15 and the drawing downward of the piston-rod 28 and its head 29. As the head 29 moves toward the vents 23 the air between said head and the vents will be forced out through such vents. Thus no resistance is offered to the movement of the head 29, as the vents 23 are proportioned to allow the free passage of the air, while the traverse of the head is so proportioned to the throw of the staff that the head passes the vents approximately at the time at which the driving mechanism ceases to act on the picker-staff and the staff reaches the limit of its shuttle-throwing blow, when the air between the head 29 and the end 25 will be compressed and will act as a pneumatic cushion to resist the further movement in this direction of the head 29 and through the connections therewith will retard and cushion the progress of the staff.

The spring retracting device for returning the staff to normal position being now brought into action, the staff will fly back, the lever-arm 12 being thrown upward and moving the piston-head freely in the same direction until the head passes the vents 23, when the air between the head 24 will be compressed and will offer a gradual cushioning resistance to the final seating of the picker-staff, determined by the adjustment of the vent-screw 26.

It is obvious that various forms of pneumatic resistances may be substituted for that herein shown, and they may be connected with the staff by various mechanisms without departing from the spirit of this invention.

A single vent 23 may be used, if desired, or the number may be increased and their positions changed.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. A picker-check comprising an arm, means for pivotally mounting the same in a loom, connections between the picker-staff and said arm, whereby the operation of the picker-staff causes the swinging of the arm, and means positively connected with said arm for exerting resistance to its swinging motion at times.

2. A picker-staff check comprising an arm adapted to be pivotally supported in a loom, means adapted to be mounted on the picker-staff for causing the swinging of the arm, a cylinder, and a compressor working in the cylinder, and connections between the compressor and the arm.

3. A picker-staff check comprising a cylinder adapted to be pivotally supported on the loom-lay and having vents at its ends and at points intermediate its ends, a piston working through an axial perforation in one of the cylinder ends and having a head, an arm adapted to be pivotally mounted and pivotally connected with the piston, said arm having a curved slot or guide, and a box adapted to be adjustably secured to the picker-staff and having a pin working in said slot or guide.

4. The combination, with the bracket depending from the loom-lay and furnished with the adjustable bearings as 8, the levers 12 having the pivots 11 journaled in said bearings the plates 13 and 14 having the slots 15 and the end 16 and the extension 17 on the plate 14, and the box secured to the picker-staff and having the pins 21 working in slots 15, of the cylinder 22 pivotally mounted on the lay 6 and having the vents 23, and the piston 28 having the head 29 and the slotted end 30 working on the extension 17, as and for the purpose described.

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

FRANK B. COMINS.

Witnesses:

W. STANLEY CAMPBELL,
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