

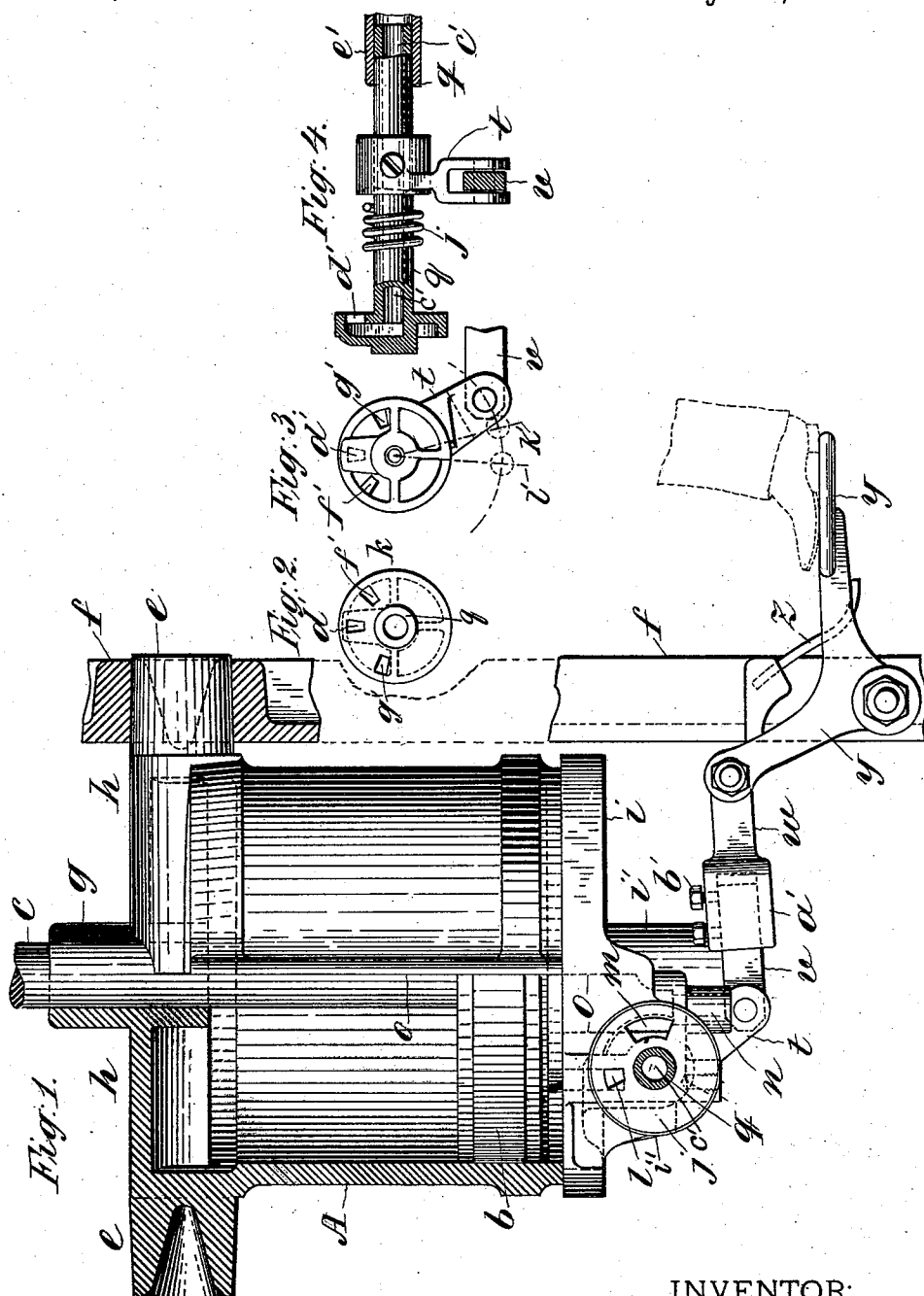
(No Model.)

2 Sheets—Sheet 1.

P. C. BLAISDELL.
PNEUMATIC PRESS.

No. 586,946.

Patented July 20, 1897.



WITNESSES:

P. W. Wiman
Ch. J. Morgan

INVENTOR:

Phil C. Blaisdell

By

A. P. Thayer

Attorney.

(No Model.)

2 Sheets—Sheet 2,

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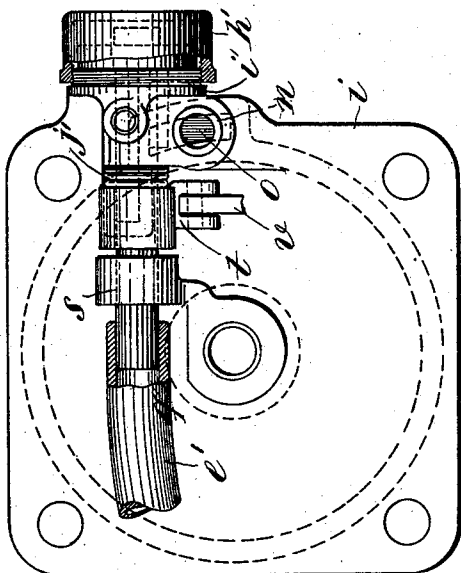


Fig. 6.

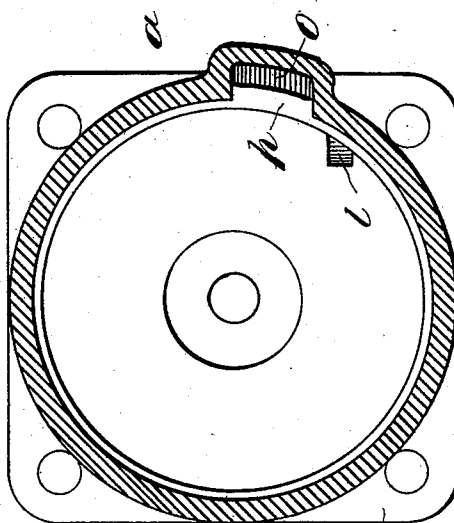


Fig. 7.

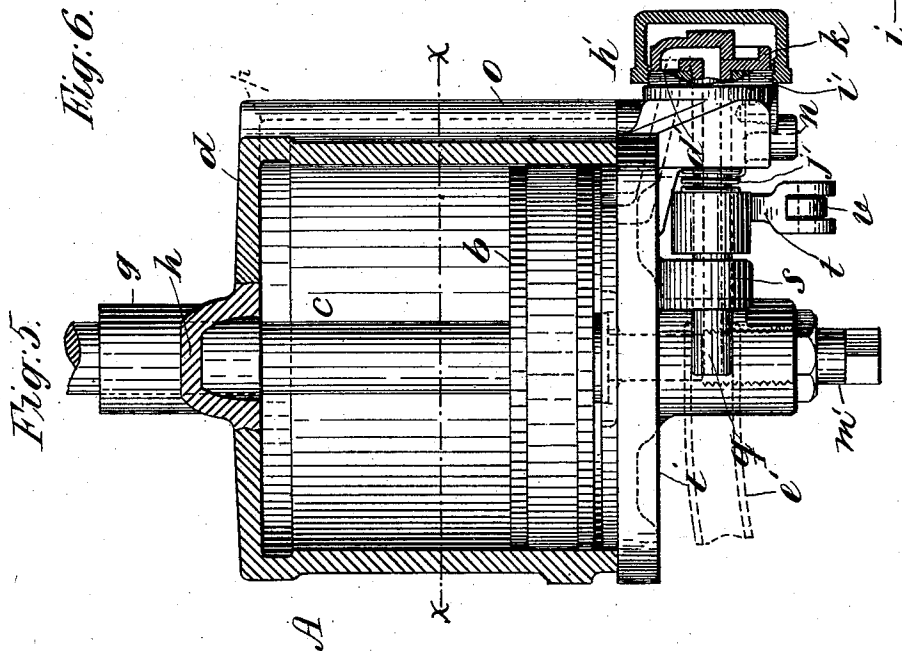


Fig. 5.

WITNESSES:

F. H. Alvin
W. J. Morgan

INVENTOR:

Phil C. Blaisdell

By

A. P. Thayer

Attorney.

UNITED STATES PATENT OFFICE.

PHILO C. BLAISDELL, OF BRADFORD, PENNSYLVANIA.

PNEUMATIC PRESS.

SPECIFICATION forming part of Letters Patent No. 586,946, dated July 20, 1897.

Application filed July 6, 1896. Serial No. 598,124. (No model.)

To all whom it may concern:

Be it known that I, PHILO C. BLAISDELL, a citizen of the United States, and a resident of Bradford, in the county of McKean and State of Pennsylvania, have invented certain new and useful Improvements in Pneumatic Presses, of which the following is a specification.

My invention relates to pneumatic presses in which the power is to be applied from the upper end of an upwardly-moving piston-rod of a vertical cylinder, as in the press of a wood-bundling machine; and it consists of the improvements in the mounting of the cylinder and in the valve mechanism, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is partly a side elevation and partly a sectional elevation of the cylinder, one of the housing-frames, and part of the valve mechanism. Fig. 2 is a face view of the valve. Fig. 3 is a view of the back of the valve and side view of part of the apparatus for working it. Fig. 4 is a detail of the valve and some of its adjuncts, partly in section and partly in side view. Fig. 5 is an elevation of the cylinder and valve mechanism, partly in section and partly in side view. Fig. 6 is a plan view of the cylinder and valve mechanism with a part in section; and Fig. 7 is a horizontal section of the cylinder on line *x x*, Fig. 5.

A represents an upright pneumatic cylinder, *b* the piston, and *c* the piston-rod, all arranged for the said rod to apply the force upward, said rod extending upward through the upper cover *d* of the cylinder for the application of the power.

The cylinder is provided with trunnions *e* at opposite sides of the upper end, by which it is mounted in housing-frames *f*, whereby the cylinder is free to accommodate itself to any lateral play that the upper end of the piston-rod may be subject to by reason of its tendency to thrust against one or the other of its guideways under the stresses of labor, which guideways it is to be understood are to be in the plane in which the cylinder is arranged to vibrate, but are not shown in this case, as they are shown and claimed in another application, filed July 6, 1896, Serial

No. 598,123, to which reference is made for further description of the guideway.

The body *A* of the cylinder, the upper cover *d*, trunnions *e*, and the guide-box *g* for the piston-rod are all cast together integrally with the axis of the trunnions, which is coincident with the top of the cylinder or thereabout, and with radial ribs *h* of the cover intermediate of the upper portions of the trunnions and the guide-box *g* for substantial construction and symmetrical arrangement. The lower cover *i* is made separate from the cylinder and detachably secured, as usual, for admitting the piston, and it is formed with a boss *j'*, whereon is a circular port-face *j* for a disk-valve *k*, in which face is the port *l* for admission and exhaust of air under the piston and the port *m* for escape of the air when exhausting from the piston.

From the port *m* the air escapes into the atmosphere through the nozzle *n* or into a flexible or other pipe to be connected therewith when it is desired for conducting the air through the floor or elsewhere to prevent raising the dust in the vicinity of the machine. From nozzle *n* there is communication with the upper end of the cylinder through the passage *o*, cored in the cover *i* and the shell of the cylinder *b* coincidently and opening into the cylinder by the port *p* for free circulation of air to avoid hindrance of the action of the piston both in ascending and descending, the latter movement being by gravitation. This vent is connected with the nozzle *n* also for utilizing the pipe to be connected with said nozzle as a protector against dust being sucked into the cylinder by locating the mouth of the pipe where the air will be comparatively free of dust.

The port-face is bored centrally to receive the stem *q* of the valve *k*, which is inserted therethrough for one of its bearings and in the bracket *s*, bored coincidently with said bore of the seat, and it has an arm *t*, by which it is oscillated through the instrumentality of the connecting-rod *v w*, foot-lever *y*, and the spring *z* for actuating the valve.

The connecting-rod is made extensible by the socket *a'*, the part *v* inserted therein, and set-screws *b'* to facilitate adjusting the valve properly. The valve-stem is bored centrally,

as at *c'*, and has the port *d'* in its face and communicating with the bore of the stem for admitting air to actuate the piston, the air being supplied by a hose-pipe *e'*, coupled to the free end of the stem, as indicated in Figs. 4 and 6. The valve has port *f'* for release of air from under the piston, and the port *g'* for its escape from the valve-case through exhaust port *m*.

10 *h'* is the valve-case. It is in this example screwed onto the boss *i'*, on the face of which the valve-seat *j* is formed.

A coiled spring *j'* on the valve-stem between the valve-seat boss and the hub of arm 15 *t* and being compressed between them holds the valve to the seat against the tendency of the air-pressure to force it away.

In Fig. 3 the valve is represented in the position for admitting air to actuate the piston, to which position it is shifted by the foot of the attendant, as indicated in Fig. 1. The position of the valve for retention of the air after cutting off and while the press is holding its position, as tying the bundle, is indicated by the dotted line *k'*, and the position for exhaust is indicated by the lines *l'*. The spring *z* is employed for returning the valve to these positions when the attendant relaxes the pressure of his foot on the lever.

30 An adjusting-screw *m'* is inserted through the lower cover *i* of the cylinder, suitably for a variable stop to limit the down movement of the piston, which it is desirable to regulate as the action of the machine may determine.

I claim—

1. The combination with the cylinder of the cover having the centrally-perforated port-face for a disk-valve, inlet and exhaust ports of said face, the disk-valve having the central perforated stem and port for admission of air through the port-face, means for holding the valve to the seat and means for oscillating the valve by its stem for controlling the cylinder-ports, said cylinder having the vent at the upper end substantially as described.

2. The combination with the vertical cylinder, of a pneumatic press, of the lower cover having the vertical and centrally-perforated port-face with ports communicating with the lower end of the cylinder, the vertically-arranged oscillatory disk-valve having the hollow stem and port for admitting the air, said stem arranged in the central perforation through the port-face and adapted for attachment of the supply-pipe for the air, the vertically-swinging arm of the valve-stem located intermediately of the port-face and the bearing-lug, vertically-operating foot-lever connected with said arm, and the retracting-spring for the valve substantially as described.

Signed at Bradford, in the county of McKean and State of Pennsylvania, this 6th day of April, A. D. 1896.

PHILO C. BLAISDELL.

Witnesses:

JOHN P. MELVIN,
ROBT. L. EDGETT.