July 14, 1964 H. L. COLE 3,140,867

ADJUSTABLE FEEDER SHOE FOR VERTICAL PRINTING PRESSES

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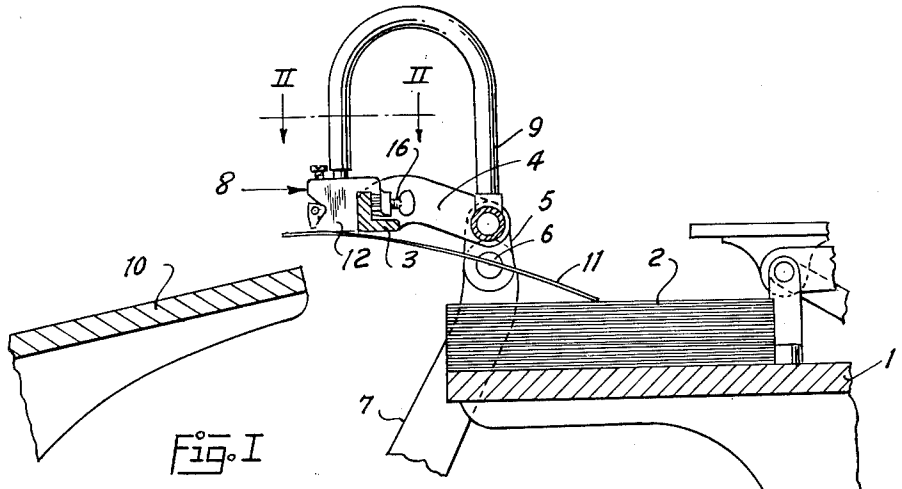


Fig. I

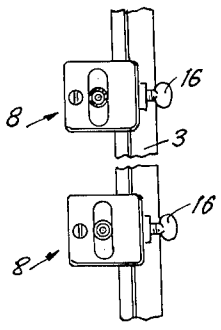


Fig. II

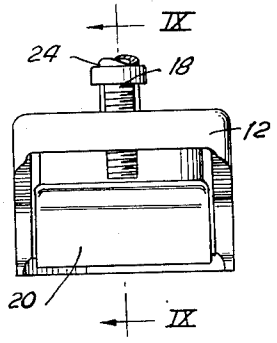


Fig. III

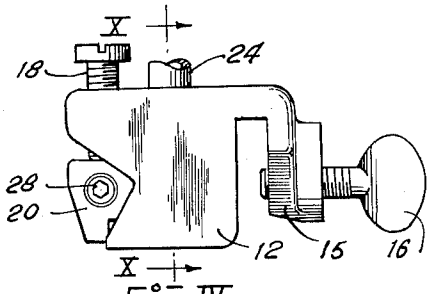


Fig. IV

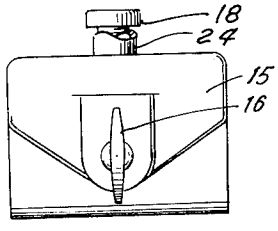


Fig. V

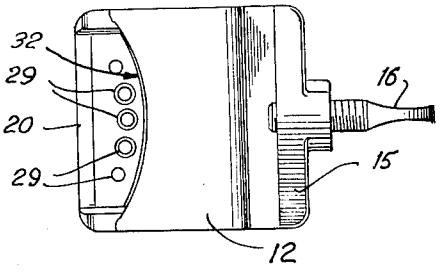


Fig. VI

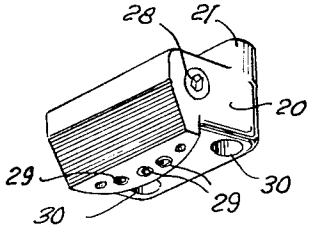


Fig. VII

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ADJUSTABLE FEEDER SHOE FOR VERTICAL PRINTING PRESSES

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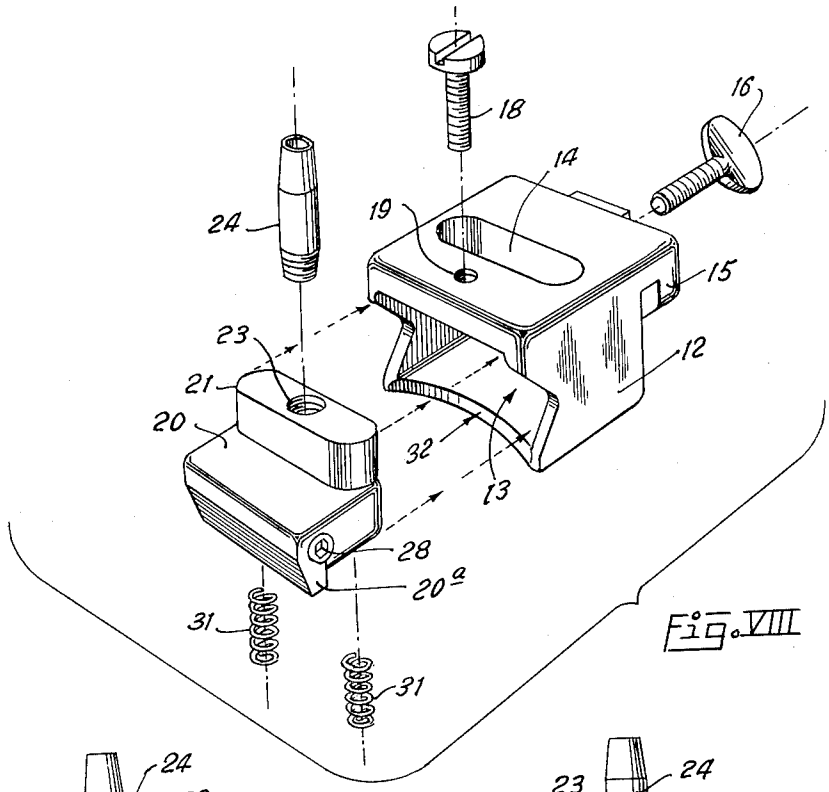


Fig. VIII

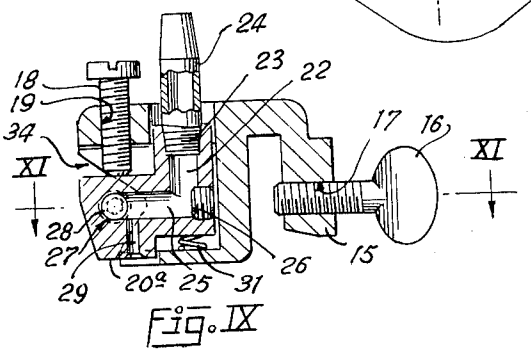


Fig. IX

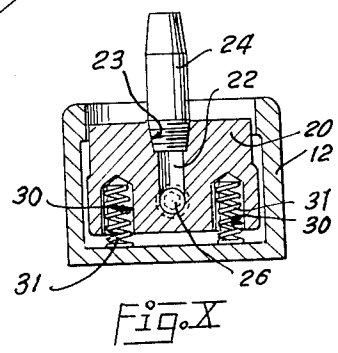


Fig. X

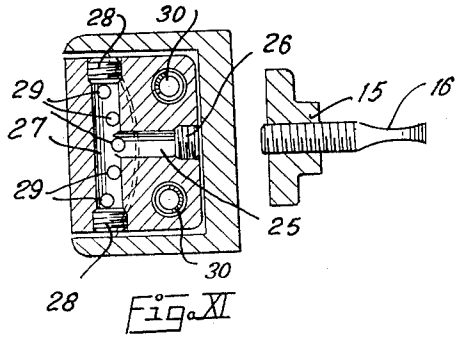


Fig. XI

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ADJUSTABLE FEEDER SHOE FOR VERTICAL PRINTING PRESSES

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4 Claims. (Cl. 271—26)

This invention is concerned with a suction feeder shoe for use on so-called vertical presses used in printing, for picking up sheets of paper from a stack of paper, and depositing same on the feeder board of the press; and it is particularly concerned with an adjustable feeder shoe, which is unitary and self-contained, is easy to adjust, has a minimum number of parts, and is simple to assemble and use.

In my previous U.S. Patent No. 3,042,396 an adjustable feeder shoe was disclosed which included a multiplicity of parts designed to be employed with a conventional feeder shoe body, but said feeder shoe had certain defects in that it provided leakage points for the suction, was not easily adjusted and was generally cumbersome in use and adjustment.

The present invention is an improvement over the device disclosed in said previous patent, in that there is provided in an adjustable feeder shoe of only two parts, wherein the suction passages are provided as an integral part and sealed in the adjustable body pickup portion of the adjustable feeder shoe so that there can be no leakage of suction, which is easy to install and adjust, may be quickly assembled and disassembled, and may be more accurately adjusted.

Other and further objects of the invention will become apparent upon reading the detailed specification hereinafter following, and by referring to the drawings annexed hereto.

A suitable embodiment of the invention is shown in the attached drawings wherein:

FIGURE I is a fragmentary, side elevational view showing a press table in proximity to a feeder tray, showing a sheet of paper being picked up by the adjustable feeder shoe and being transferred to the feeder tray;

FIGURE II is a top plan view of a pair of the adjustable feeder shoes mounted to the cross bar of a vertical press;

FIGURE III is a front elevational view of the adjustable feeder shoe;

FIGURE IV is a side elevational view of the adjustable feeder shoe;

FIGURE V is a rear end view of the adjustable feeder shoe;

FIGURE VI is a bottom plan view of the adjustable feeder shoe;

FIGURE VII is a bottom perspective view of the suction head body of the adjustable feeder shoe;

FIGURE VIII is a perspective exploded view of the adjustable feeder shoe;

FIGURE IX is a transverse, cross-sectional view taken on the line IX—IX of FIGURE III;

FIGURE X is a cross-sectional, elevational view taken on the line X—X of FIGURE IV; and

FIGURE XI is a horizontal, cross-sectional view taken on the line XI—XI of FIGURE IX.

Numeral references are employed to designate the various parts shown in the drawings, and like numerals indicate like parts throughout the various figures of the drawings.

Referring first to FIGURE I, the numeral 1 indicates a table of what has become known in the trade as a Miehle vertical press on which is disposed a stack of paper 2 to be printed.

The vertical press includes a crossbar 3 on which is customarily mounted two suction pick-up heads, said

crossbar being mounted on a pair of spaced arms 4, which, in turn, are pivotally carried by arms 7 by means of pivots, such as indicated at 6. The arms 7 are arranged to swing back and forth to carry the head from the stack of paper to the feeder tray 10, to transfer individual sheets of paper from the stack of paper 2 to the feeder tray.

The adjustable pickup shoe is indicated generally by the numeral 8, and has communicating therewith, in the manner hereinafter described, a flexible vacuum conduit 9, for supplying suction thereto to pick up sheets of paper 11 from the stack 2 and transfer same to the feeder tray 10.

The novel feeder shoe includes a hollow holder 12 having a transverse opening 13 therein, the lower edge of which is recessed, as indicated at 32, for the purposes hereinafter mentioned.

An elongated opening 14 is provided in the upper side of the holder 12, which communicates with the transverse hollow portion 13.

An overhanging hook 15 is provided on the rear side of the holder 12, said hook being arranged to extend over, and be attached to, the upwardly extending flange of the crossbar 3, by means of a thumb set screw 16, turned inwardly thereagainst, through a threaded passage 17.

An adjustment screw 18 may be threadedly extended through the interiorally threaded hole 19 in the hollow holder 12 to adjust the suction pickup body 20 in the manner hereinafter described.

The pickup body 20 is an integral body having an upper extension 21 thereon arranged to be received in the elongated top opening 14 in the hollow holder 12.

A vertical bore 22 is provided through the upper extension 21 of the pickup body 20, and is interiorally threaded at its upper end, as indicated at 23, to threadedly receive a suction fitting 24. The flexible end of the suction hose 9 may be forced into sealed relationship over the outer conical end of the suction fitting 24 to apply suction to the passage 22 and passages communicating therewith.

A horizontal bore is provided through the rear end of the body 20 substantially centrally thereof, as shown in FIGURE XI, which may be closed by a threaded plug 26.

Another transverse passage 27 is provided through the body 20 to intersect the passage 25 in right angular relationship near the front of the body, and overlying the extension 20*a* on the body. The passage 27 is closed at each end by threaded plugs 28.

Spaced suction ports 29 are provided through the downwardly extending portion 20*a* of the body 20, said suction ports communicating with the transverse passage 27, and therethrough with the passages 25 and 22.

It will thus be seen that all suction passages are formed integrally with the body 20 and transverse passages 25 and 27, and have their outer ends closed so that the suction circuit is completely enclosed and no leakage can occur. Furthermore, the passages may be easily formed by simple drilling operation through the rear sides and top of the body 20, thus providing for simplicity and cheapness in manufacture.

A pair of spaced spring seat bores 30 are provided in the lower side of the body 20, which are arranged to receive helical springs 31, having their lower ends seated against the lower wall of the opening 13 of the hollow holder 12.

The body 20 may be assembled with relation to the holder 12 by placing the springs 31 in the hollow bores 30, and depressing same so that when the body 20 is inserted in the passage 13, the springs will engage the inner side of the lower wall of the opening 13 and the upward extension 21 may be brought into registry with the elon-

gated passage 14 to allow the springs to push the extension 21 upwardly thereinto. The suction coupling 24 may then be threaded into the opening 23 as shown in FIGURE IX, and the adjustment screw 18 may be threaded into the hole 19, to cause the inner end of the adjustment screw to engage the upper surface of the suction body 20.

It will be noted that the downward extension 20*a* of the body 20 extends downwardly through the cut-out portion 32 on the front side of the bottom of the holder 12 so that it is in position to come into close proximity to a sheet of paper 11 on the stack of paper 2.

It will be readily seen that the vertical position of the lower face of the body 20, wherein the outlets of the passages 29 are disposed, may be adjusted with relation to the bottom of the holder 12, by simply turning the screw 18 inwardly or outwardly. When the screw 18 is turned outwardly, the springs 31 urge the body 20 upwardly to space the openings of the passages 29 further from the paper.

Thus the pickup head 20 may be adjusted vertically for picking up different weights and thicknesses of paper from the stack 2.

Thus it will be seen that I have provided an adjustable pickup shoe assembly for a vertical press, which has a minimum number of parts, is easy to assemble, relatively inexpensive to manufacture, is simple to assemble and disassemble and attach to the crossbar of the press, is easy and simple to adjust, and provides a minimum number of connection points for leakage of suction.

It will be understood that other and further embodiments of the invention may be devised without departing from the spirit and scope of the appended claims.

Having described my invention, I claim:

1. In a suction pickup head for a printing press, a hollow body having an upper wall, spaced side walls, and a lower wall defining a transverse horizontal opening therein with a vertical passage through the upper wall of the hollow body communicating with the opening; means on the hollow body to attach same to a crossbar on a press; a pickup body disposed in the transverse opening; an upwardly extending portion on the pickup body extending into the vertical passage; a vertical suction passage extending through the upwardly extending portion of the pickup body; a horizontal suction passage in the pickup body intersecting the vertical suction passage; a transverse suction passage in the pickup body intersecting the horizontal passage in right angular relationship thereto; a plurality of spaced vertical ports through the lower face of the pickup body communicating with the transverse suction passage; a portion on the pickup body extending outwardly beyond the transverse opening in the hollow body through which portion the vertical ports extend; and means to adjust the relative height between the outwardly extending portion of the pickup body and the lower surface of the hollow body.

2. The combination called for in claim 1 wherein the adjustment means comprises, an interiorally threaded hole extending through the upper wall of the body; a screw threadedly engaged in said interiorally threaded hole and extending through the upper wall of the transverse opening in the hollow body engaging the upper surface of the pickup body; and spring means between the lower wall of the transverse opening and the pickup body arranged to urge the pickup body against the end of the screw.

3. The combination called for in claim 1 wherein the outwardly extending portion of the pickup body has a portion extending downwardly over the front edge of the lower wall of the transverse opening in the hollow body.

4. In a device of the class described, a hollow body having an upper wall, spaced side walls, and a lower wall, defining a transverse horizontal opening therein, a recess in the front edge of the lower wall; a passage through the upper wall of the hollow body communicating with the transverse opening; means on the rear of the hollow body attachable to the crossbar of a printing press; a pickup body; an upwardly extending portion on the pickup body arranged to enter the passage in the upper wall of the hollow body; an outwardly extending portion on the pickup body; a downwardly extending portion on the outwardly extending portion; a vertical suction passage through the upwardly extending portion of the pickup body; a horizontal suction passage in the body intersecting the vertical passage; a transverse suction passage in the body intersecting at right angular relationship the horizontal passage, said transverse suction passage overlying the downwardly extending portion; a plurality of vertical ports provided in spaced relationship through the downwardly extending portion of the body communicating with the transverse suction passage; the said downwardly extending portion of the pickup body being arranged to overhang the recess in the lower wall of the transverse opening in the hollow body; an interiorally threaded hole extending through the upper wall of the body; an exteriorally threaded adjustment screw threadedly engaged in the interiorally threaded hole and extending through the upper wall of the hollow body, having an inner end contacting the upper face of the outwardly extending portion of the pickup body; and spring means arranged between the lower wall of the transverse opening and the lower face of the pickup body arranged to urge the outward extension of the pickup body against the inner end of the adjustment screw.

References Cited in the file of this patent

UNITED STATES PATENTS

2,953,371	Smith	Sept. 20, 1960
2,967,705	Lindemann	Jan. 10, 1961
2,986,392	Buttner	May 30, 1961
3,042,396	Cole	July 3, 1962