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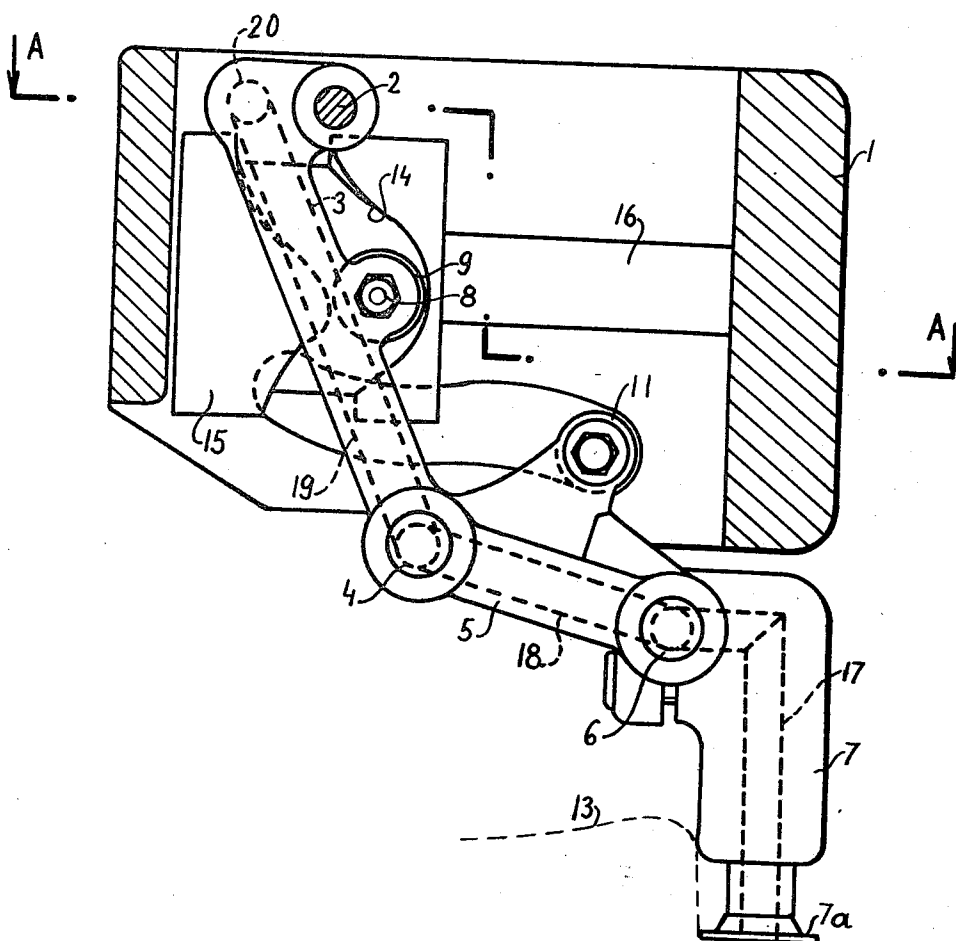
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[54] **SHEET-FEEDING MECHANISM FOR PRINTING PRESSES**
4 Claims, 2 Drawing Figs.

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[50] Field of Search 271/5, 11,
26; 214/1(BS4) (Inquired)

ABSTRACT: A swingable lever pivoted to a support and having pivotally connected thereto a carrier which is provided with a follower engaging a profiled track in the support for guiding movement of the carrier. A suction rod equipped with suction cups is supported by the carrier, and the carrier as well as the lever are provided with air passage means communicating through the suction rod with the suction cups.



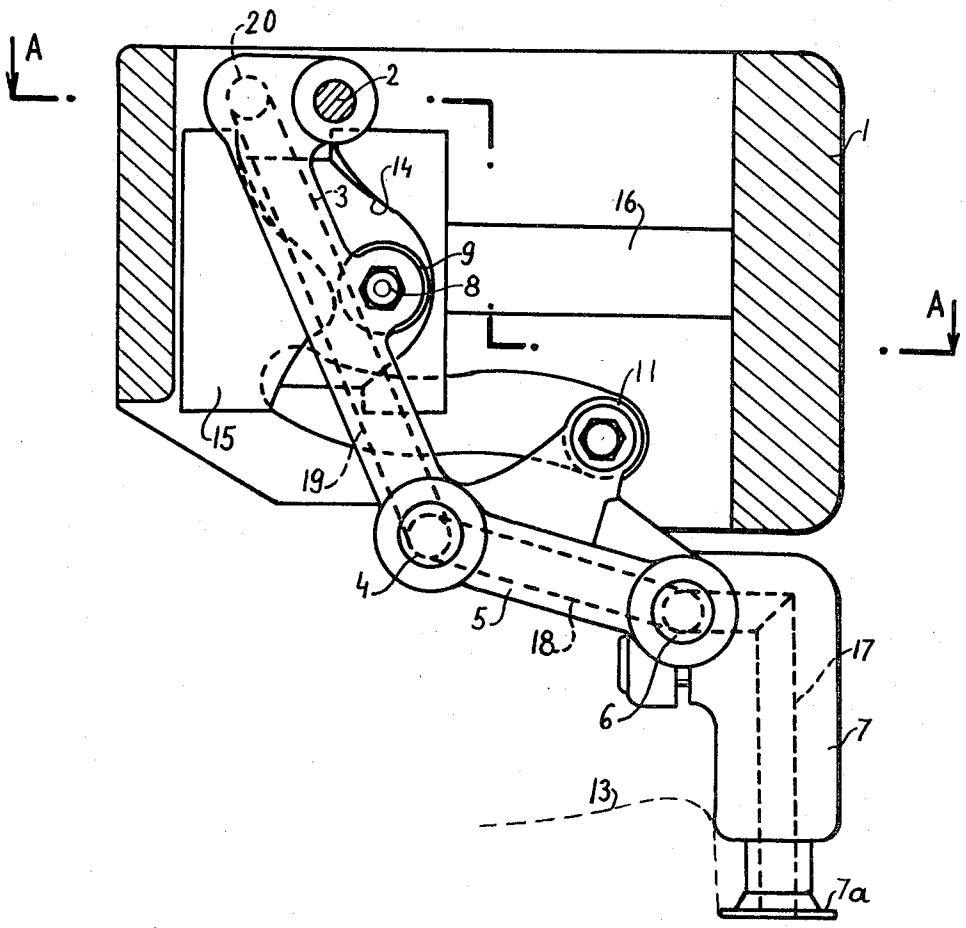


Fig. 1

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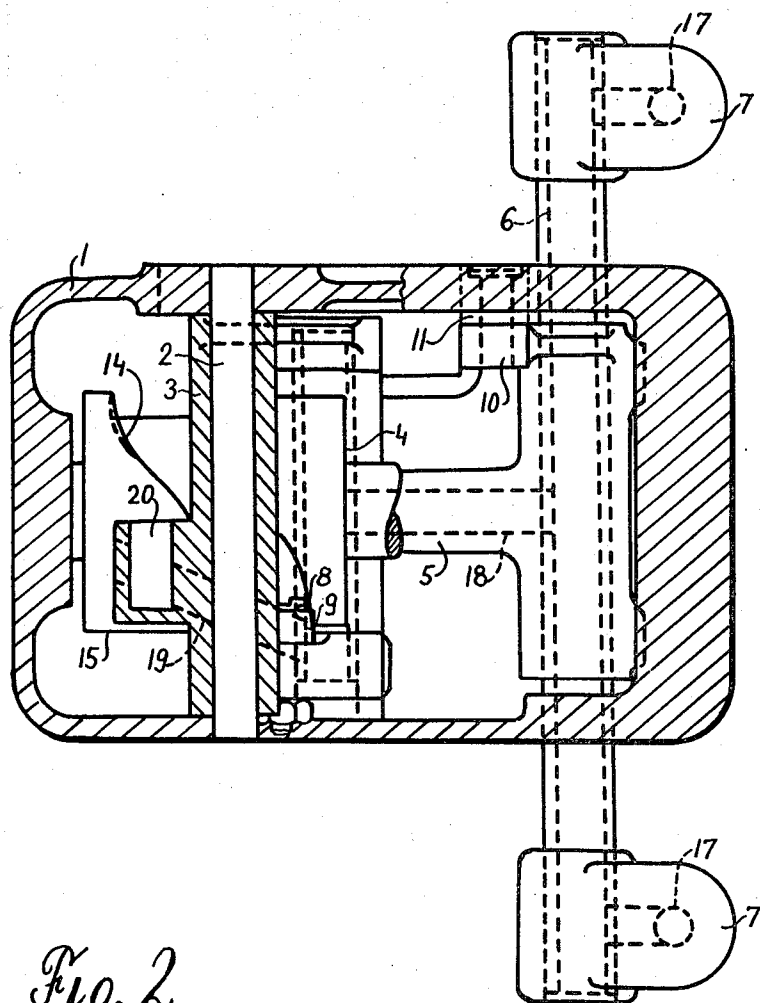


Fig. 2

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SHEET-FEEDING MECHANISM FOR PRINTING PRESSES

This invention relates to new and useful improvements in mechanisms for feeding sheets from a stack by suction, and in particular the invention concerns itself with suction feeding of individual sheets of paper, as for example, to a printing press or the like.

Prior art devices of this general type often utilize two sets of suction cups, one set for lifting the sheet off a stack and another set for feeding the same, and thus the mechanism is unduly complicated and likely to get out of order. Other prior art devices utilize suction cups mounted on a suction rod which is moved or translated from a sheet pickup to a sheet delivery position by complicated linkage, while suction hoses are connected to the suction rod externally of the linkage. While this is generally satisfactory, the external hose or piping arrangement is also complicated and wastes a considerable amount of valuable space. Also, devices are known in the prior art wherein the operating linkage is hollow so as to provide suction conduits, but in these devices the hollow linkage is actuated by cams or other actuating elements which are disposed outside of the support which houses the linkage, so that again, the mechanism is unduly cumbersome and space wasting.

The principal object of this invention is to eliminate the disadvantages of the prior art devices as above outlined, this being attained by the provision of simple linkage including a swingable lever which, along with means for swinging the same, is contained within a supporting housing, the lever having pivoted thereto a carrier equipped with guide means, also disposed within the housing, for guiding the movement of the carrier when the lever is swung. The carrier supports a suction rod provided with suction cups, and both the lever and the carrier are formed with continuous air passage means communicating with the cups through the medium of the suction rod. As a result, a very simple, compact and efficient arrangement is obtained, which does not require the linkage-actuating means, or the linkage-guiding means, or the suction facilities to be disposed externally of the supporting housing.

Other objects and advantages of the invention will become apparent from the following description taken in conjunction with the accompanying drawings, wherein like characters of reference are used to designate like parts, and wherein:

FIG. 1 is a view, partly in side elevation and partly in vertical section, of the sheet feeding mechanism in accordance with the invention; and

FIG. 2 is a horizontal sectional view, taken substantially in the plane of the line A-A in FIG. 1.

Referring now to the accompanying drawings in detail, the sheet feeding mechanism comprises a boxlike supporting housing 1 which is provided therein with a fulcrum pin 2 for a swingable lever or fork 3, disposed within the housing. The lever 3 is connected by a pivot pin 4 to a translatable carrier 5 which, in turn, supports a suction rod 6 carrying mountings 7 for sheet-engaging suction cups 7a.

The lever 3 is also provided with a stud 8 having a rotatable guide roller 9 mounted thereon, the roller 9 engaging a cam

track 14 in a cylindrical cam 15. The latter is secured to a shaft 16 journaled in the housing 1, the shaft 16 being driven in any suitable manner so that when the cam 15 is rotated, engagement of the guide roller 9 with the cam track 14 imparts a swinging, or oscillating movement to the lever 3.

The carrier 5 is provided with a stud 10 carrying a rotatable guide roller 11 which engages a profiled track or groove 12 in one side of the housing 1, so that during oscillation of the lever 3, the carrier 5 and the associated components 6, 7 and 7a are effectively guided in their translating movement between a sheet pickup and a sheet delivery position along a predetermined path as indicated at 13.

The suction facilities for the cups 7a are provided by continuous air passage means within the linkage itself. Such air passage means include passages 17 through the cup mounting 7, the passages 17 communicating with the interior of the suction rod 6 which is hollow and then, through the medium of an air passage 18 in the carrier 5, with the interior of the pivot pin 4 which is also hollow. The continuity of the air passage means is then taken from the hollow pin 4 through an air passage 19 in the lever 3 to an opening 20 in the lever 3, the opening 20 receiving a suitable suction hose (not shown) leading to an air pump (also not shown). The compact, space saving characteristics of the invention will be apparent from the foregoing, it being noted that the lever 3, the lever-actuating means 9, 15, 16, the carrier-guiding means 11, 12, 2, as well as the suction facilities are contained wholly within the supporting housing 1, so that disposition of any of these components externally of the housing, as in the prior art, is not at all necessary.

We claim:

1. In a sheet-feeding mechanism of printing presses and the like, the combination of a support, a swingable lever pivotally attached to said support, means for swinging said lever, a carrier pivotally connected to said lever, a follower provided on said carrier, said support having a profiled track engaged by said follower whereby to guide said carrier along a predetermined path when said lever is swung, a suction rod supported by said carrier for movement therewith, and suction cups mounted on said suction rod, said lever, said carrier and said suction rod are provided with continuous air passage means communicating with said suction cups.

2. The mechanism as defined in claim 1 together with a hollow pivot pin connecting said carrier to said lever, said hollow pin constituting a component of said continuous air passage means.

3. The mechanism as defined in claim 1 wherein said support comprises a box-shaped housing, said lever and said lever swinging means and said follower and said profiled track being disposed within said housing.

4. The mechanism as defined in claim 1, wherein said lever comprises a fork having a pair of spaced arms, and said means for swinging said lever comprises a cylindrical cam disposed between the arms of said fork, said cam having a profiled track and one of said arms having a follower engaging said track, said track and follower cooperating to oscillatingly swing said lever.