March 30, 1954 R. P. BECHLE 2,673,766

LOCKING MECHANISM FOR LOCKING LATERALLY ADJUSTABLE CYLINDER BEARINGS

Filed May 16, 1951 2 Sheets-Sheet 1

FIG. 1

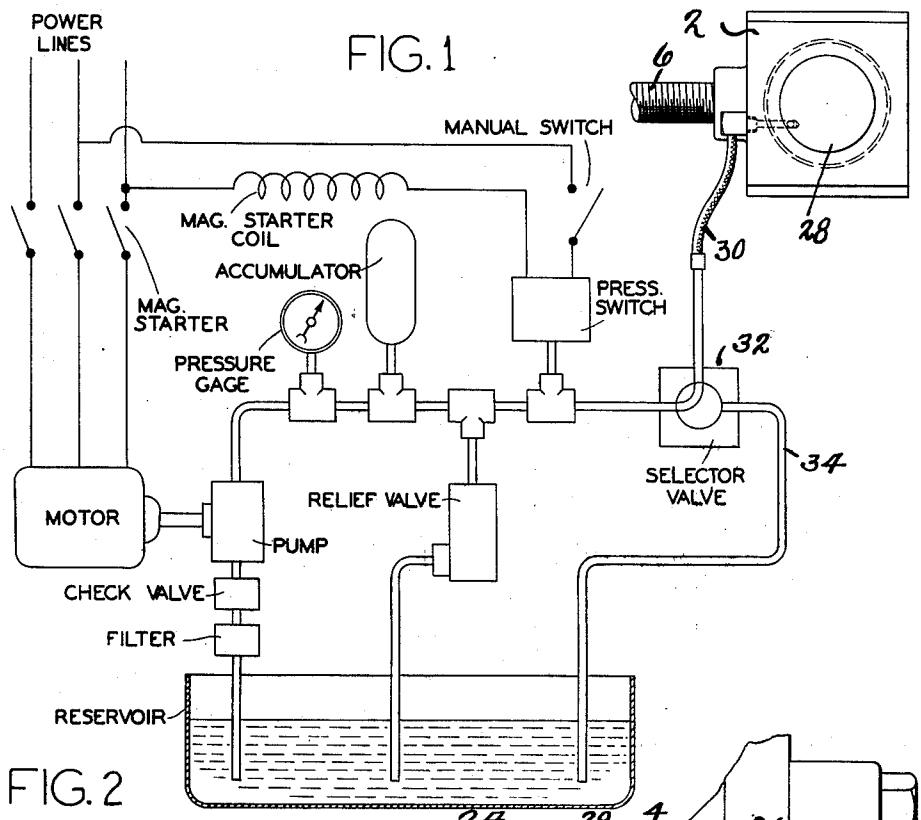
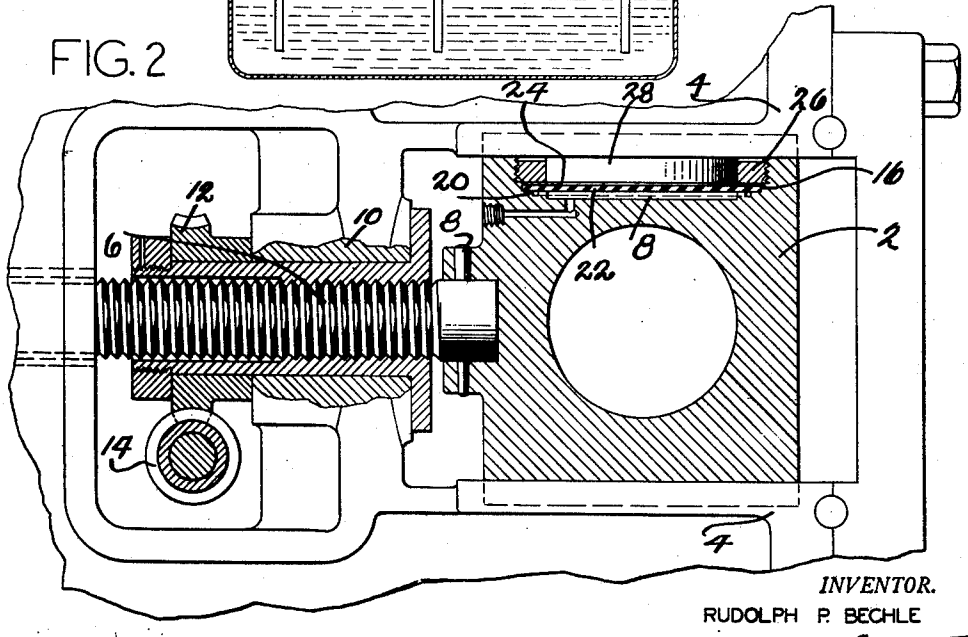


FIG. 2



INVENTOR.
RUDOLPH P. BECHLE
BY James G. Bechle.

March 30, 1954 R. P. BECHLE 2,673,766

LOCKING MECHANISM FOR LOCKING LATERALLY ADJUSTABLE CYLINDER BEARINGS

Filed May 16, 1951 2 Sheets-Sheet 2

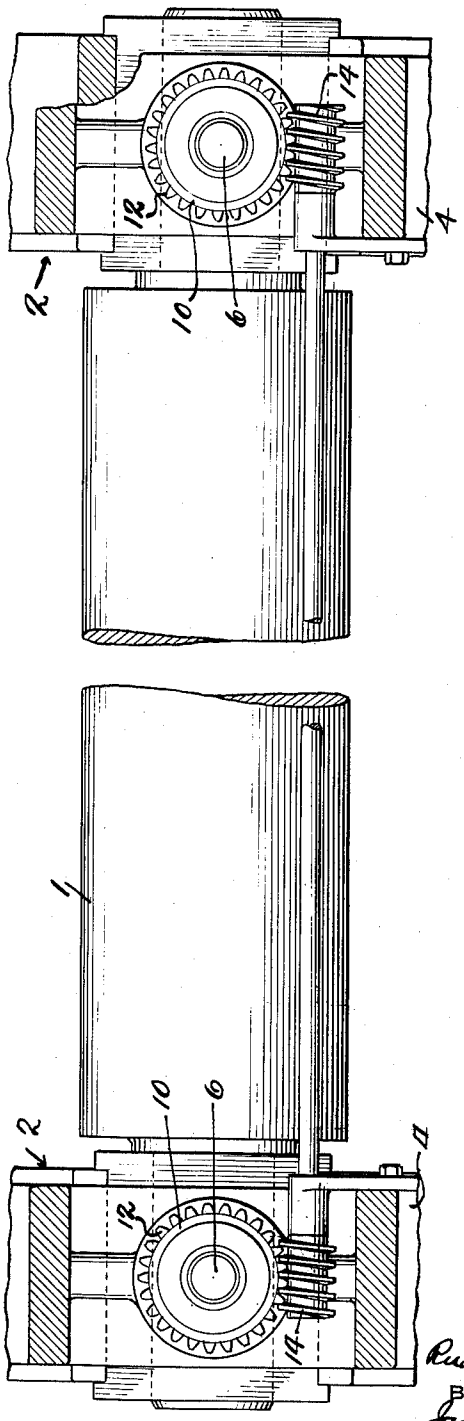


FIG. 3

INVENTOR
Rudolph P. Bechle
BY
James G. Bechle
ATTORNEY

Patented Mar. 30, 1954

2,673,766

UNITED STATES PATENT OFFICE

2,673,766

LOCKING MECHANISM FOR LOCKING LATERALLY ADJUSTABLE CYLINDER BEARINGS

Rudolph P. Bechle, Yonkers, N. Y., assignor to Potdevin Machine Company, Brooklyn, N. Y., a corporation of New York

Application May 16, 1951, Serial No. 226,591

3 Claims. (Cl. 308—59)

1

My invention broadly relates to printing presses but more specifically relates to the impression cylinders or rollers of the press.

In printing presses it is necessary to provide for lateral adjustment of the impression cylinders relative to the cooperating plate cylinders. This is conventionally accomplished by providing an adjustment for the box bearings for the cylinders. However, the mechanisms heretofore employed have not proven entirely satisfactory in that, while it is a comparatively simple matter to provide for shifting the bearings, it has been difficult to compensate for wear of the adjusting mechanism and extremely difficult to provide for maintaining the bearings and, hence, the impression cylinders in adjusted position.

On this type of machine it is essential that the adjusting mechanism be of such a nature that an infinite number of very fine adjustments can be obtained, and it is equally essential for production purposes that the cylinders, after being adjusted, remain in adjusted position.

In a broad sense, my invention provides mechanism whereby the above mentioned requirements are met in a simple and relatively inexpensive fashion.

More specifically, my invention provides means whereby the impression cylinders may be adjusted and then locked in adjusted position. Still more specifically, I provide for an infinite number of adjustments of the cylinders together with hydraulically operated means for locking the cylinders in adjusted position.

In the drawings,

Fig. 1 is a general layout of my improved mechanism;

Fig. 2 is a part-sectional elevational view of the adjusting and locking mechanism; and Fig. 3 is a part-sectional elevational view of a cylinder mounted in the bearings shown in Fig. 2;

Referring to the drawings in detail:

For purposes of clarity of illustration and description I have shown the invention applied to one of the bearings of an impression cylinder of a printing press, it being understood, of course, that the equipment is applied to both bearings of each cylinder.

The bearing or box for one end of an impression cylinder 1 of a printing press has been designated 2, and it is shown in plan in Fig. 1 and in section in Fig. 2. Fig. 3 shows the impression cylinder 1 with a bearing or box at each end thereof.

Each box is movable or adjustable laterally in the fixed machine frame members 4, so as to vary the position of the impression cylinder with a cooperating plate cylinder (not shown).

2

To effect this lateral adjustment of the bearing, I provide each bearing with an externally threaded rod 6, which extends transversely of the axis of the impression cylinder. The inner end of each adjusting rod extends into the side of the bearing and is pinned thereto, as illustrated at 8, or otherwise non-rotatably secured to the bearing.

Threaded upon each adjusting rod is a rotatable sleeve 10, this sleeve, however, having no longitudinal movement.

Affixed to each of the sleeves 10 is worm gear 12, which is driven by worm 14.

It will be seen from the foregoing that this construction provides a very simple arrangement whereby the bearings 2 and, hence, an impression cylinder mounted therein may be laterally adjusted either to the right or left, as viewed in Fig. 2, to vary the position of the cylinder with a cooperating cylinder. It will be apparent also that, because of the threaded adjusting mechanism provided, the number of possible adjustments is infinite.

As above pointed out, the object of this invention is to provide for not only an infinite number of adjustments for the impression cylinder, but to provide for locking the cylinder in any of these adjusted positions.

As illustrated in Fig.2, the upper face of each bearing 2 is provided with a depression or recess 16. This is preferably circular in plan. Just below this depression or recess 16 is another circular depression 18, which is slightly smaller in diameter than 16. This construction provides an annular shoulder 20 in the bearing at the bottom of recess 16 for supporting a diaphragm 22 of a suitable plastic or other material, this diaphragm being provided on its upper face with a thin metal annulus 24. The diaphragm assembly is held in place by a ring or annulus 26, which is threaded into the bearing, and clamps the diaphragm and the metal annulus 24 to the bearing.

Resting upon the upper face of the diaphragm assembly is a locking plug, which is slightly larger in diameter than the inner diameter of the annulus 24.

The upper end of the plug 28, when the diaphragm assembly is deflected, will be pushed into locking contact with the machine frame member 4.

Pressure is supplied to the cavity 18 beneath the diaphragm assembly from the line 30.

An oil reservoir has been shown in Fig. 1, and the fluid, oil for example, is placed under pressure by an electric driven pump, also illustrated in Fig. 1.

In practice, the impression cylinder bearings **2** are shifted to the desired position by rotation of the worm **14**. The selector valve **32** is then set to permit fluid under pressure to be admitted to the cavity **18** in the upper face of the bearings **2** beneath the diaphragm assembly, to force the locking plug **28** into locking contact with the machine frame **4**.

Because of the type of adjusting mechanism employed, it will be evident that an infinite number of adjustments are possible so far as the impression cylinder bearings are concerned. It will be apparent also that, because the outer end of the plug **28** is flat and because it engages a flat surface on the machine frame, the bearing can be locked in any and all adjusted positions.

It will be understood that pressure is maintained on the lower side of the diaphragm whenever the machine is in use. When an adjustment is to be made to the bearings, the selector valve **32** is turned to position to permit the oil or other fluid to return to the reservoir through return line **34**. This will, of course, unlock the bearings, to permit it to be adjusted. The bearings may then be shifted or adjusted as above explained, and after being so shifted, the valve **32** is then turned again to permit fluid under pressure to be supplied to the cavity **18** to lock the bearing.

It will be understood that, while I have shown the invention applied to but one bearing, in practice the same arrangement is supplied to both bearings for each impression roller or cylinder.

From all of the foregoing it will be appreciated that I have provided a very simple construction for adjusting the impression cylinders of printing presses wherein an infinite number of adjustments of the cylinder may be obtained and the cylinder locked in any adjusted position.

What I claim is:

1. In combination, a cylinder, bearings therefor, a fixed mount for the bearings in which the bearings are laterally adjustable and locking mechanism for the bearings, said locking mechanism comprising, in combination, a diaphragm carried by each bearing, a locking element carried by the diaphragm and positioned between the diaphragm and the said mount, and means for supplying pressure fluid to one side of the diaphragm to deflect the same to force the locking element into locking contact with said mount.

2. In combination, a cylinder, bearings therefor, a fixed mount for the bearings in which the bearings are laterally adjustable, each bearing being provided with a cavity abreast of a portion of said mount, a diaphragm rigidly secured to each bearing and bridging the cavity therein, a plug between each diaphragm and the opposed surface of the said mount, and means for supplying pressure fluid to the face of each diaphragm remote from said plugs to effect a deflection of the diaphragms and force said plugs into locking contact with the opposed face of said mount.

3. In combination, a cylinder, a bearing therefor, a fixed mount for the bearing in which the bearing is laterally adjustable, the bearing being provided with a cavity abreast of a portion of said mount, a disc diaphragm overlying said bearing cavity, an annulus overlying the diaphragm, a ring screwed into the bearing and rigidly clamping the diaphragm and overlying annulus to the bearing; a plug overlying the diaphragm between it and the opposed portion of the said mount, the outside diameter of the plug exceeding the inside diameter of said annulus, and means for admitting pressure fluid to the bearing cavity beneath said diaphragm to deflect the diaphragm to force said plug into locking contact with said mount.

RUDOLPH P. BECHLE.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,507,436	Seymour	Sept. 2, 1924
1,824,436	Lamatsch	Sept. 22, 1931
2,451,730	Greenlee	Oct. 19, 1948

FOREIGN PATENTS

Number	Country	Date
138,761	Great Britain	Feb. 19, 1920