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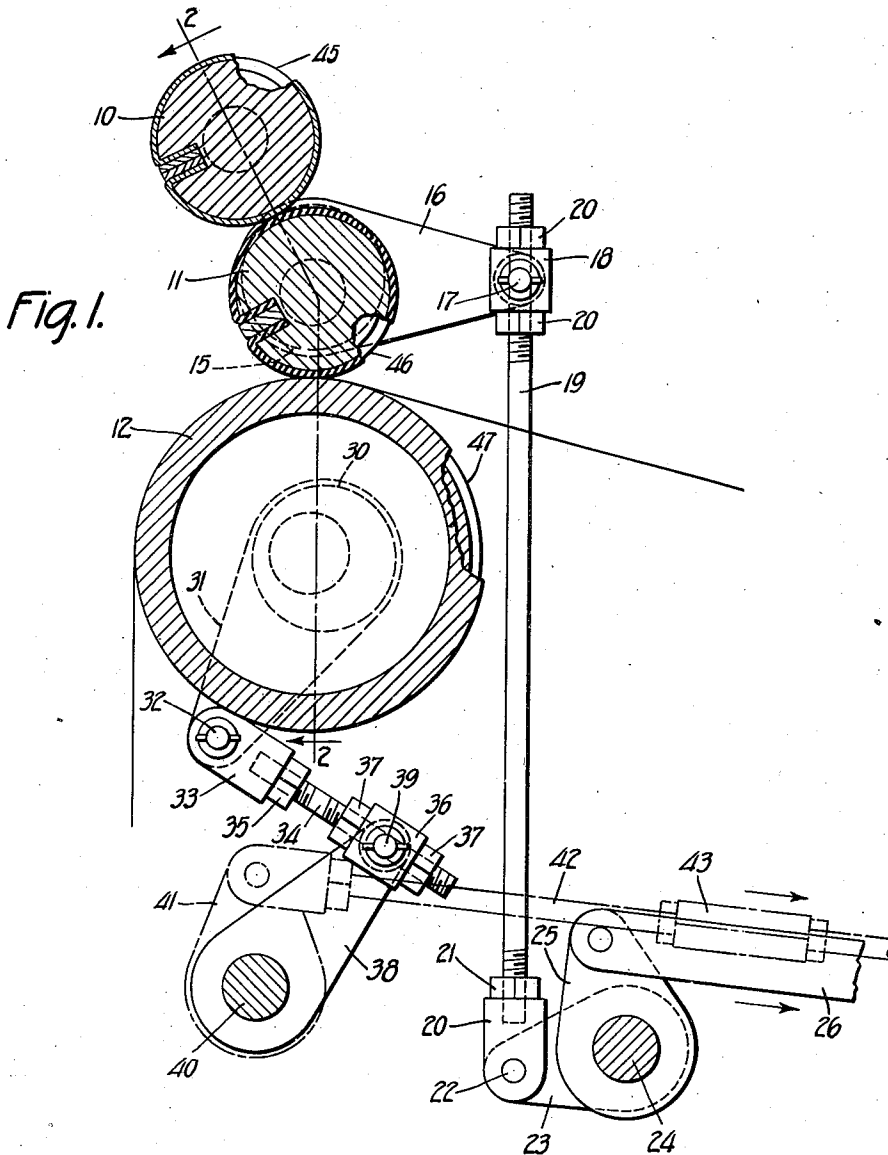
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2,278,312

OFFSET PRESS CYLINDER ADJUSTING AND GAUGING CONSTRUCTION

Filed Sept. 23, 1940

2 Sheets-Sheet 1



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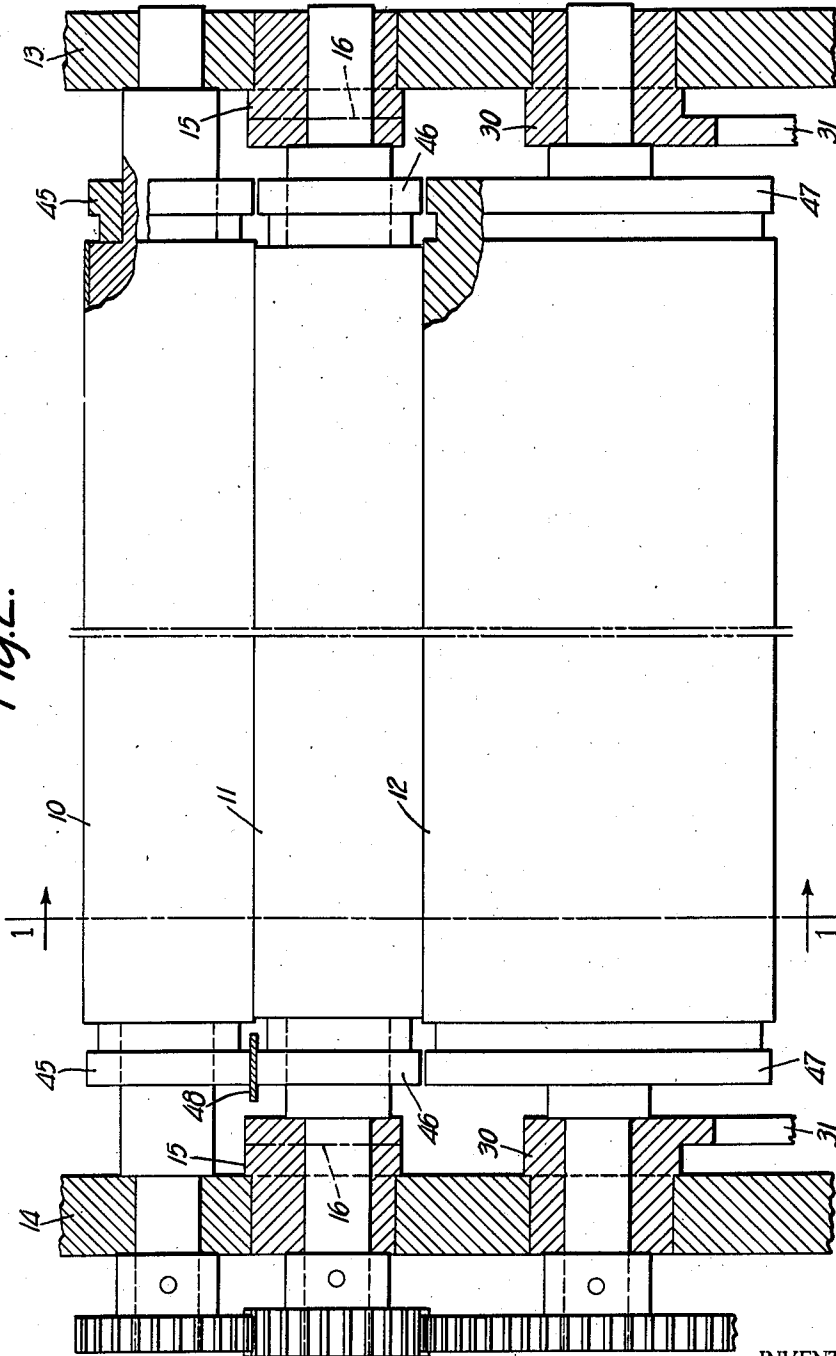
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Fig. 2.



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OFFSET PRESS CYLINDER ADJUSTING AND
GAUGING CONSTRUCTION

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pany, Pittsburgh, Pa., a corporation of Penn-
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4 Claims. (Cl. 101—218)

This invention relates to cylinder lithograph-
ing or printing presses and especially to presses
of this type such as offset presses in which the
pressure between contacting cylinders must be
precisely controlled. For this purpose the con-
tacting cylinders are frequently provided with
bearing rollers mounted at the ends of each cyl-
inder and maintained in direct rolling contact,
such rollers serving to maintain with great ac-
curacy the spacing of the cylinders and thereby
to provide the proper pressure between the con-
tacting cylinder surfaces. With this arrange-
ment, however, such pressure is obtained only
when the cylinders, including plates, rubber
covers and the like carried thereby, are of ex-
actly the correct diameter. If the rubber cover,
for instance, is not of the proper thickness, the
pressure will not be correct. If the cover is too
thin it has heretofore been necessary to under-
lay the cover in order to bring the cylinder up
to the proper overall diameter, an operation
which involves considerable trouble. On the
other hand, if the rubber cover should be too
thick it cannot be used until its thickness is
reduced.

Another objection to the indicated construc-
tion is due to the fact that the spacing of the
cylinders is affected not only by the bearing
rollers, but also by the cylinder bearings, so
that the rollers have had a tendency to intro-
duce difficulties in the operation of the cylinder
bearings.

A general purpose of this invention is to pro-
vide an improved arrangement in which the spac-
ing and pressure of contacting cylinders of such
presses can be properly established regardless
of variations in the overall diameters of such
cylinders, thereby eliminating the necessity for
underlying rubber cylinder covers, and permit-
ting the use of such covers exceeding the stand-
ard thickness. An important feature is the pro-
vision of improved means for rapidly and accu-
rately determining the proper cylinder spacing.

This is in general accomplished by eliminating
or cutting down the bearing rollers, so that they
are out of contact during operation, and provid-
ing means for adjusting the cylinder spacing
in accordance with the overall diameters of con-
tacting cylinders. The accuracy of such adjust-
ment is, moreover, determined rapidly and con-
veniently by providing cooperating cylindrical
gauge members mounted at registering ends of
contacting cylinders and coaxial therewith, the
aligned cylindrical surfaces of the members be-
ing spaced by a slight distance advantageously

within the range of ordinary feeler gauges. With
this construction the proper adjustment can be
determined with great accuracy, and different
gauge blades may be provided for rubber cylin-
der covers or plates of different thicknesses.

The gauge members are advantageously and
conveniently provided by reducing the diameter
of the bearing rollers heretofore employed, either
by cutting down such rollers, or by providing
new rollers, discs or cylinder sections of smaller
diameter. This construction is particularly ad-
vantageous since it requires a minimum of change
in the present presses. Moreover, it eliminates
the necessity for the surface hardening of such
rollers, and thereby reduces the cost of such
rollers.

Pairs of gauge cylinders of the indicated type
are advantageously provided at both ends of
each pair of contacting cylinders, in combination
with means for separately adjusting the spacing
of said cylinders at each end. This construction
facilitates the maintenance of the rollers in exact
parallelism after adjustment.

A feature of this arrangement is the provision
of means for determining the cylinder spacing
which is independent of the adjusting mecha-
nism and which, therefore, is not rendered in-
accurate by any variations in such mechanism.
The improved construction is simple, strong, free
from any tendency to get out of order, and the
gauging can be done without special skill or
experience.

Other objects and advantages of the invention
will appear from the following description con-
sidered in connection with the accompanying
drawings, in which

Fig. 1 is a transverse vertical section through
the printing cylinders of an offset press on line
1—1 of Fig. 2, showing the associated adjusting
and throw-out mechanism; and

Fig. 2 is an adjusted vertical section on line
2—2 of Fig. 1 with parts broken away.

The illustrated arrangement includes the plate
cylinder 10, rubber transfer cylinder 11 and im-
pression cylinder 12 of an offset printing or litho-
graphing press. The cylinders are all mounted
in the frame members 13, 14 for adjustment
toward and from each other. For this purpose
plate cylinder 10 is journaled in fixed position
on said frame members. Transfer cylinder 11
is mounted in eccentric bearings 15 journaled in
said frame members, each bearing having a lat-
erally projecting integral arm 16 whose outer
end is pivotally mounted through pivot stud 17
on adjusting collar 18 held in vertically adjusted

position on link rod 19 by nuts 20 threaded on said rod and engaging the upper and lower faces of collar 18. The lower end of each rod 19 is threaded into a head 20 and held in adjusted position therein by lock nut 21, head 20 being pivoted through pivot stud 22 to rock arm 23 fixed to rock shaft 24 suitably journaled in the frame of the machine. Any suitable means is provided for rocking shaft 24, the usual arrangement including a rocking arm 25 fixed to said shaft and connected through link 26 to a suitable shifting handle (not shown).

Impression cylinder 12 is mounted in eccentric bearings 30 journaled in frames 13, 14 and each provided with a downwardly extending arm 31 pivoted through stud 32 to head 33 into which link rod 34 is threaded, being held in adjusted position by lock nut 35. The other end of rod 34 is slidable in adjusting collar 36 which is held in adjusted position by nuts 37 threaded on rod 34 and engaging opposite faces of collar 36. Rock arm 38 is pivoted at one end to collar 36 by pivot stud 39 carried by the collar and is fixed at the other end to rock shaft 40 suitably journaled in the frame.

Suitable means is provided for rocking shaft 40, preferably in synchronism with shaft 24. A known arrangement for this purpose includes a rock arm 41 secured to shaft 40 and pivoted to link 42 connected to a suitable handle (not shown) which may be the handle to which link 26 is operatively connected. Turnbuckle 43 may be introduced in link 42 for making necessary adjustments.

This cylinder mounting and adjusting arrangement above described is of known type, and is adapted to shift cylinders 11 and 12 so that they will be out of contact with each other and with cylinder 10 to prevent undesirable transfer of ink when no paper is located between the contiguous cylinders or when the press is at rest. In addition to this function, the adjustment of collars 18 and 36 by means of nuts 20 and 37 will likewise serve to adjust the spacing of the cylinders in obvious manner, and thereby vary the pressure between adjacent cylinders.

Cylinder 10 is provided at each end with a roller 45, which is rigidly connected to the cylinder and may be integral therewith. In the form illustrated rollers 45 have the same location and construction as the usual bearing rollers, except for the reduced diameter already indicated. Cylinder 11 is provided with rollers 46 similarly constructed and arranged, and cylinder 12 carries rollers 47 which are likewise similar in construction and arrangement. Rollers 45, 46 and 47 at each end of the train of cylinders are arranged in radial alignment and have accurate cylindrical surfaces concentric with the axes of their respective cylinders. Contiguous rollers 45 and 46 are spaced in normal operation by a very slight distance, which is varied by rotating the corresponding eccentric bearing 15 through adjustment of collar 18, which also changes the spacing between cylinders 10 and 11 and the pressure between these cylinders.

The parts are constructed and arranged so that the total range of variation in the spacing be-

tween rollers 45 and 46 will be within the limits measurable by standard feeler gauges. A similar clearance between associated rollers 46 and 47 is provided and has the same range of variations through adjustment of an eccentric bearing 30 by shifting a collar 36. It will be noted that the gaps between the rollers are located so that they may be conveniently measured with a suitable gauge, gauge blade 48 being shown in gauging position in Fig. 2.

The driving means for the cylinders 10, 11 and 12 and their relationship to other parts of the press have been omitted, since they are standard and well known to those skilled in this art.

I have described what I believed to be the best embodiments of my invention. I do not wish, however, to be confined to the embodiments shown, but what I desire to secure by Letters Patent is set forth in the appended claims.

I claim:

1. In a cylinder press, a pair of associated cylinders in rolling engagement with each other, and means for adjusting the pressure between the cylinders comprising two gauge members each having a circular gauging face, each member being connected coaxially to one of the cylinders and arranged with said faces in radial alignment and normally spaced by the thickness of a feeler gauge, and means for adjusting the spacing of the cylinder axes and of said faces, including bearings for the cylinders normally stationary during operation, arranged to maintain a predetermined spacing between the cylinder axes, the bearings for one cylinder being adjustable toward and from the axis of the other cylinder to adjust said spacing.

2. In a cylinder press, the construction set forth in claim 1, in which the gauge members are rigidly mounted at registering ends of the cylinders and are provided with juxtaposed cylindrical faces, and in which the adjustable bearings at opposite ends of a cylinder are independently adjustable.

3. In a cylinder press, a pair of associated cylinders in rolling engagement with each other, and means for adjusting the distance between the axes of the cylinders comprising means for adjusting the spacing of the cylinder axes at one end of the cylinder, means for independently adjusting the spacing of the cylinder axes at the other end of the cylinder, bearing means for normally maintaining a predetermined spacing between the cylinder axes during operation, and separate gauge means at each end of the cylinders for determining the spacing of such axes.

4. In a cylinder press, a pair of associated cylinders, bearings for said cylinders normally stationary during operation arranged to maintain a predetermined spacing between the cylinder axes, the bearings for one cylinder being adjustable toward and from the axis of the other cylinder, and two gauge members each having a circular gauging face, each member being connected coaxially to one of the cylinders and arranged with said faces in radial alignment and normally spaced by the thickness of a feeler gauge.

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