

Aug. 20, 1935.

C. A. MEISEL

2,012,245

PRINTING PRESS

Filed April 18, 1933

2 Sheets-Sheet 1

Fig. 1.

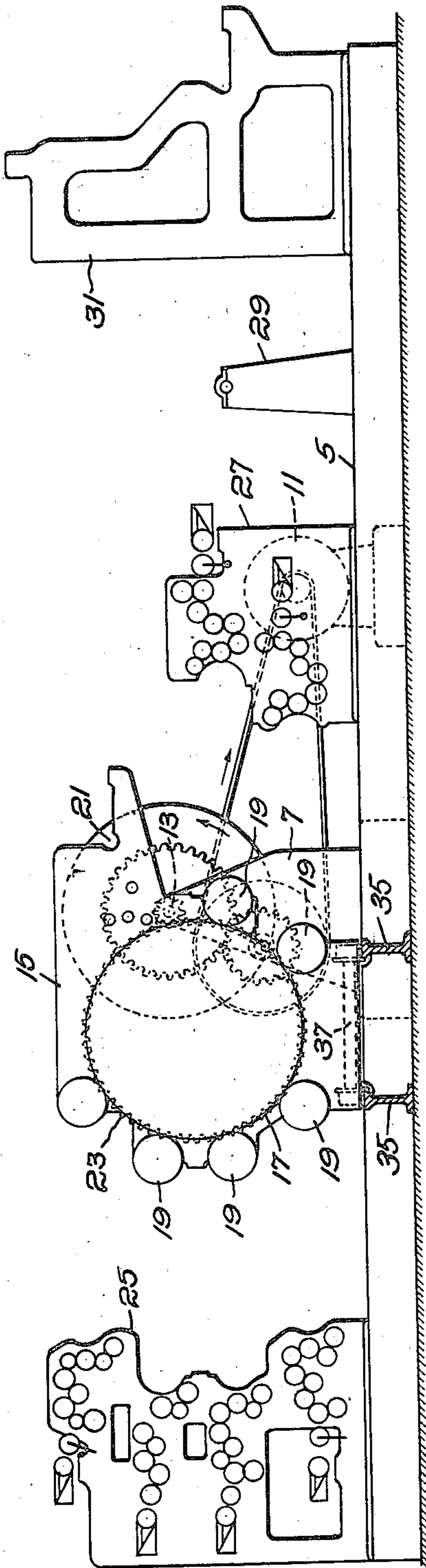
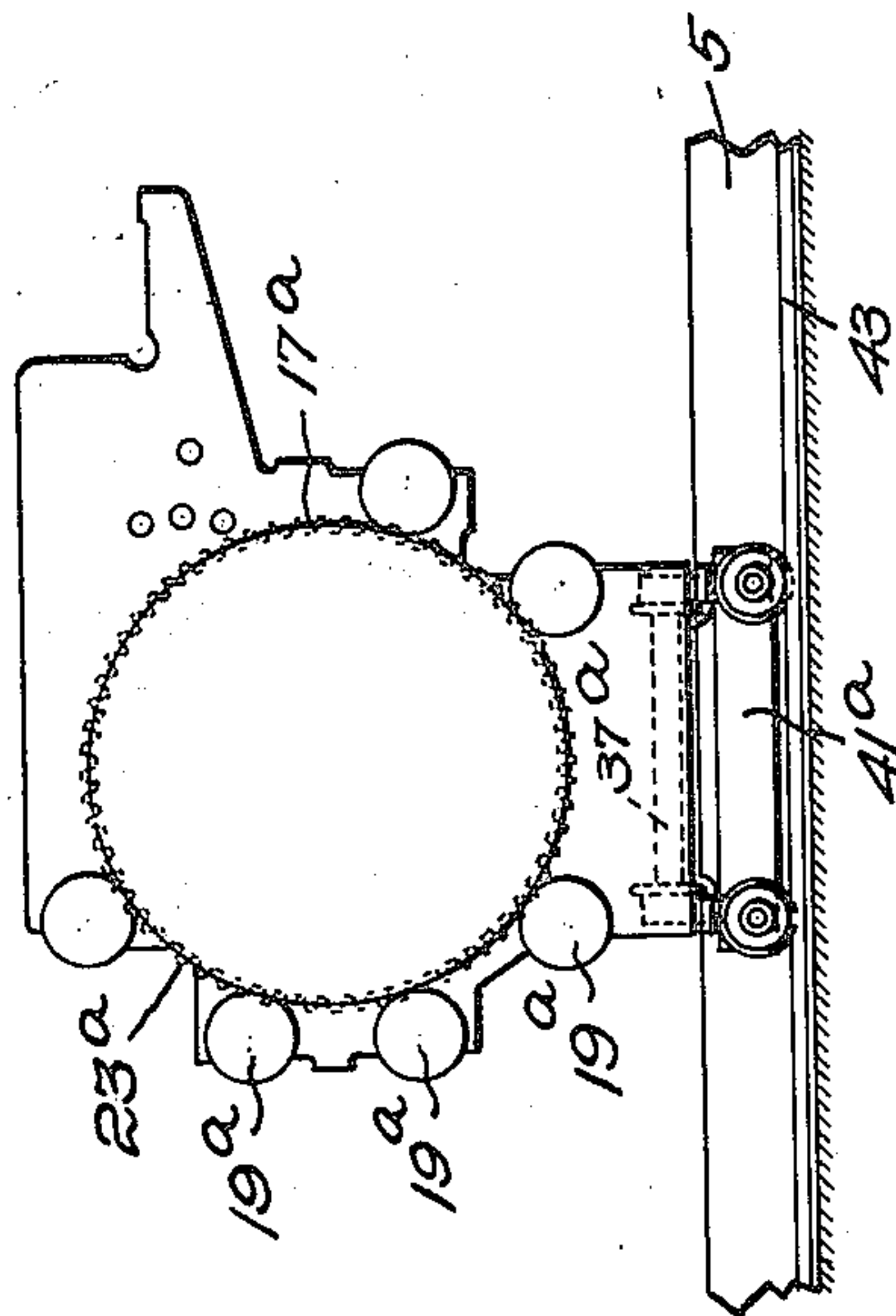


Fig. 1a



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Fig. 3.

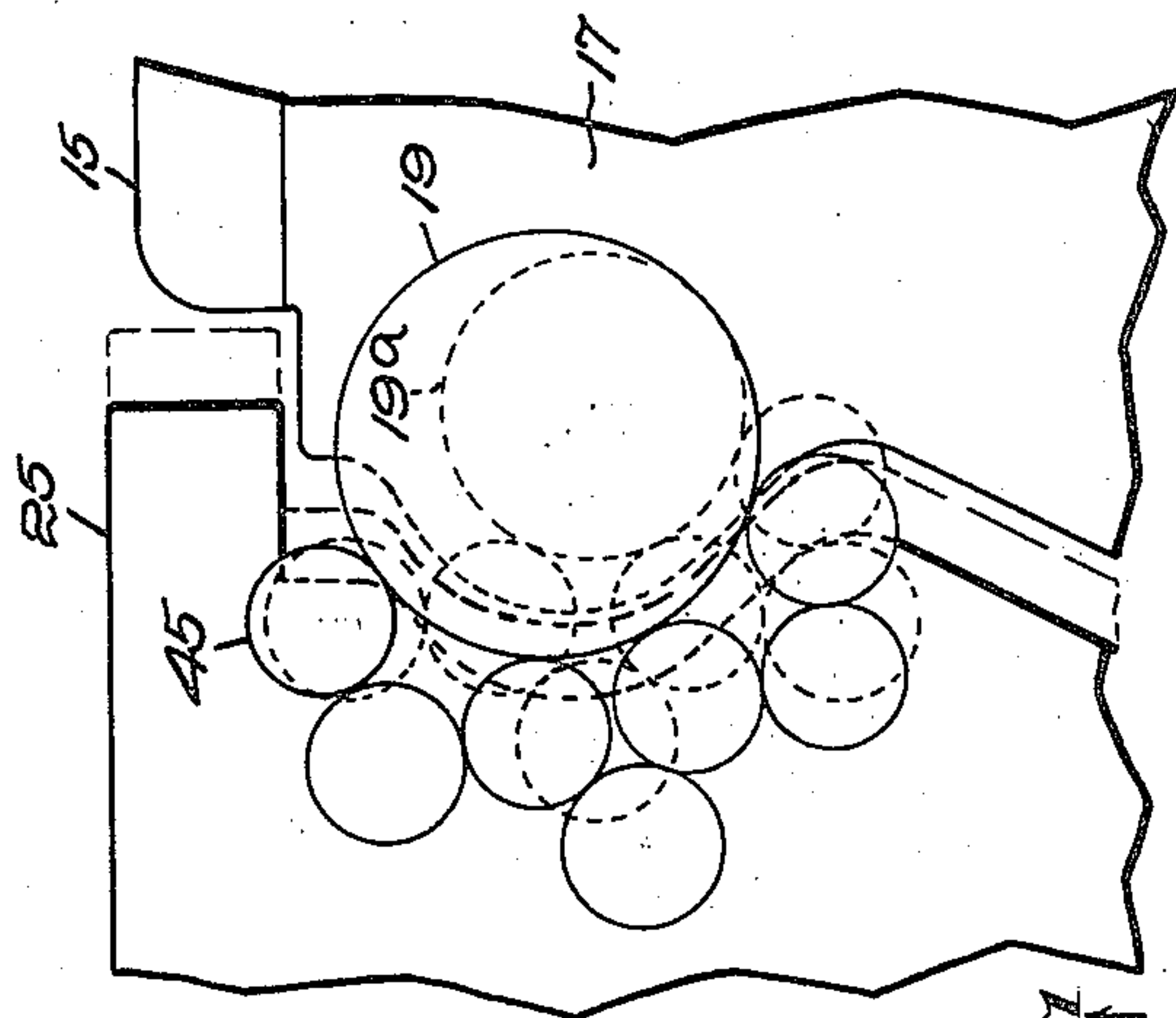
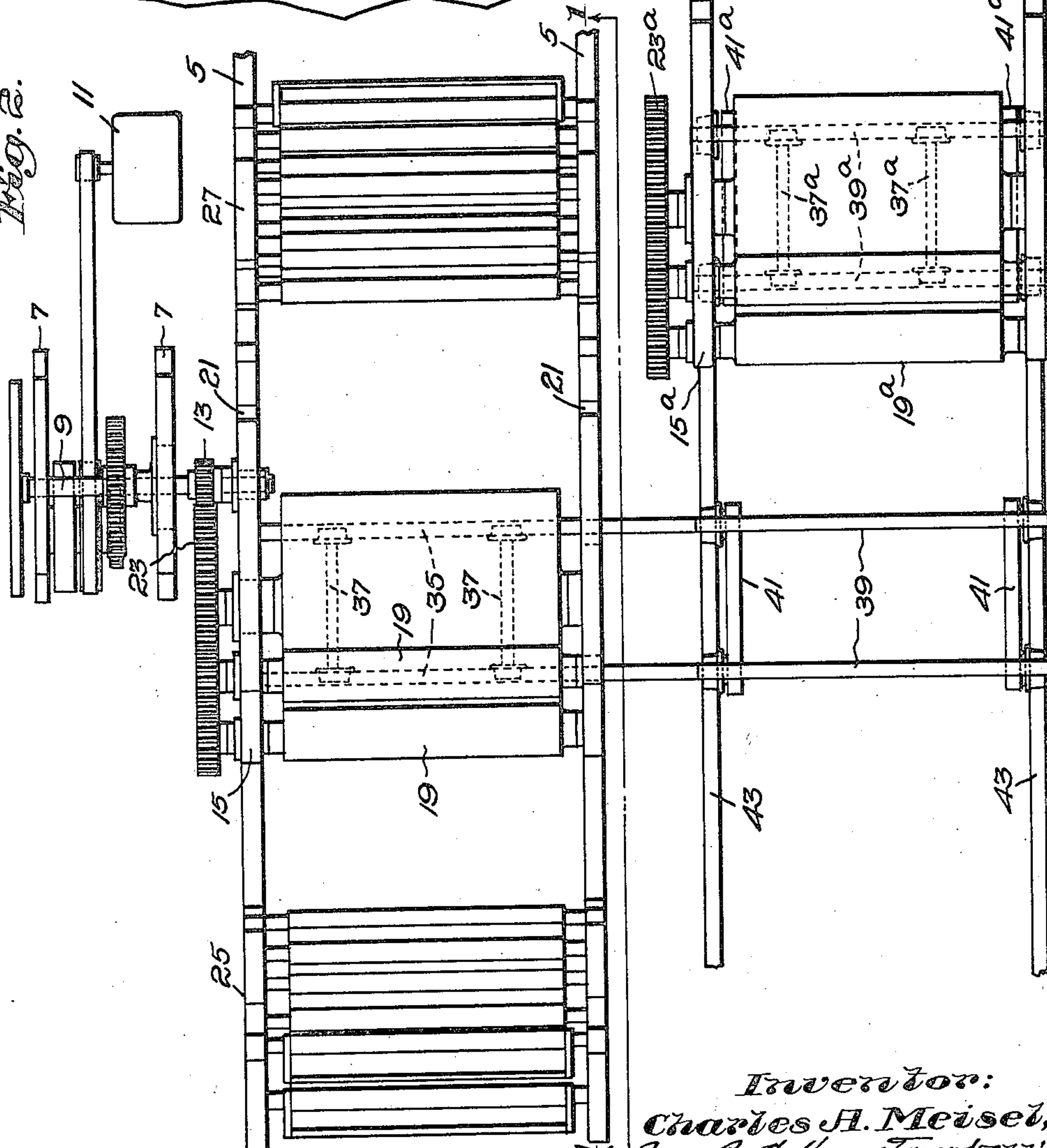


Fig. 2.



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## UNITED STATES PATENT OFFICE

2,012,245

## PRINTING PRESS

Charles A. Meisel, Milton, Mass., assignor to  
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Application April 18, 1933, Serial No. 666,709

5 Claims. (Cl. 101—178)

This invention relates to printing presses of the rotary multi-color web type, and the object is to provide a combination of parts permitting various lengths of sheet to be printed on a web while utilizing a minimum of mechanism entailing a correspondingly small capital investment and with a convenience and rapidity requiring correspondingly small operating expense.

My invention will be well understood by reference to the following description taken in connection with the accompanying drawings which are diagrammatic and simplified by the omission of parts and details unnecessary to an understanding of the invention and wherein:—

Fig. 1 is a section on the line I—I of Fig. 2 illustrating the major portion of the mechanism in diagrammatic side elevation;

Fig. 1a is a side elevation of another portion of the mechanism at the opposite side of the sectioning plane of Fig. 1;

Fig. 2 is a plan; and

Fig. 3 is an enlarged detail to be referred to.

Multi-color rotary presses for operating on webs in which a plurality of plate cylinders cooperate either with a single large impression cylinder or with individual impression cylinders are well known. Obviously the speed of the web passing through the printing couples is the same as the surface speed of the plate cylinders and if the web moves continuously a length equal to the circumference of these cylinders passes through the press on each revolution thereof. Thus for a given size of cylinder only at best a small range of sheet lengths can be printed on the web without excessive waste. In some cases to avoid the use of a number of complete and independent presses the plate cylinders are removed from the frame and replaced by others of different size, thus permitting a different sheet length to be printed. Obviously, however, this involves a partial disassembly and reassembly of the press with much mechanical labor and difficulty of adjustment.

In accordance with my invention I organize the press in such a manner that printing couples organized as a unit and separate from the inking mechanisms and other auxiliary mechanisms of the press may be bodily withdrawn by a simple and rapid operation out of cooperation with the latter mechanisms and replaced with a similarly organized unit embodying plate cylinders of different size. An example of such a construction is illustrated in the drawings.

Referring to Figs. 1 and 2, the printing mechanism embodying the interchangeable units referred to I shall refer to as a press, using that word in the singular. The construction may embody the main longitudinal supports or base stringers 5 which constitute the foundation for the portions of the press which operate at any

given time. Adjacent these base stringers 5 there may be provided in one side thereof (see Fig. 2) the standards 7 in which is mounted a drive shaft 9 adapted to take motion from any suitable source of power, herein illustrated as an electric motor 11. A driving pinion 13 on the end of this shaft is presented adjacent one of the base stringers 5. A self-contained and unitary frame 15 is adapted to be supported above the base stringers 5 and carries the printing couples, that is, the impression means and the plate or type means, herein illustrated as a single large impression cylinder 17 and plate cylinders 19, herein shown as six in number, ranged about it and geared together with it for rotation at the same surface speed in well understood manner. In the embodiment of the invention shown this frame also has a bracket 21 for supporting the roll of web which is to be printed although this is not essential. These mechanisms are driven from pinion 13 and herein a large gear 23 on the axis of the impression cylinder 17 meshes with the pinion. By way of example and to permit the invention to be more readily apprehended we may consider that the type cylinders 19 are 24 inches in circumference.

Independent self-contained frames 25 and 27 supported on the base stringers 5 carry the inking mechanisms and these frames may be moved away from frame 15 in well known manner, being shown in the retracted position in the figures, or advanced into cooperation therewith so that the various inking rolls cooperate with the plate cylinders in the customary manner. I have here shown also a frame 29 for supporting a smut roll and a frame 31 for the rewound roll.

Herein the frame 15 with the printing couples is adapted to be drawn transversely (downwardly in Fig. 2) out from between the inking mechanisms and off the longitudinal base stringers 5, the driven gear 23 in such movement separating with a substantially axial movement from the driving pinion 13. I have herein shown transverse rails 35 and wheeled trucks 37 to which the weight of frame 15 may be shifted, by suitable means not shown, to permit the frame to be moved along these rails and to two aligned rails 39 mounted on trucks 41 which run on the rails 43 paralleling the base stringers at the side thereof opposite the location of the driving shaft 9. On these rails 43 there is adapted to move a similar truck 41a with rails 39a on which run the trucks 37a supporting the frame 15a on which are mounted printing couples and which frame and the mechanisms carried thereon are substantially similar to the frame 15 and the mechanisms thereon except as to the size of the plate cylinders 19a. In the example shown in which a single large impression cylinder is used, the cylinder 17a is substantially a duplicate of the



cylinder 17 and carries a gear 23a corresponding to the gear 23. The center lines of the printing couples are homologous in the two sets of mechanisms. Thus again by way of example, assuming  
 5 that the cylinders 19 are 24 inches in circumference, we may suppose that the cylinders 19a are 18 inches in circumference, these two figures representing one practical range.

Referring now more particularly to Fig. 2, it  
 10 will be apparent that with the frames 25 and 27 withdrawn to the positions there shown, the frame 15a may be moved transversely (downwardly in the figure) onto the truck 41, its gear  
 15 23 being drawn out of mesh with driving pinion 13 and when on the truck the latter may be rolled to the left in the figure on rails 43. This will permit truck 41a to be moved from the position illustrated to the position occupied in the figure by truck 41 and the auxiliary frame 15a then to  
 20 be slid (upwardly in the figure) to the position therein occupied by the frame 15 and with gear 23a entering into mesh with pinion 13 ready to be driven thereby.

The inking rolls 45 (see Fig. 3), as will be understood by those skilled in the art, may be adjusted so that they will occupy either the full  
 25 line positions illustrated in that figure to cooperate with a large type cylinder such as 19 or the dotted line positions to cooperate with the smaller cylinders 19a.

It will be apparent that in some instances more than two unitary frames supporting printing  
 30 couples may be utilized in connection with a single set of inking mechanisms and other auxiliary mechanisms in analogous manner.

It will be apparent that by the arrangement described a quick and expeditious change of the press as a whole from one sheet length to another may be effected with very little mechanical work.  
 40 While one of the units, as 15, is in operation the other, as 15a, may be adjusted and the cylinders are accessible for the purpose of make-ready. This arrangement offers particular advantages even though cylinders of the same size may be used in the several units. Thus, for example,  
 45 jobs may be run off in rapid succession without interruption for purposes of adjusting the press, the adjustment for one job being completed while the other job is being turned out. A run with one unit may be temporarily interrupted  
 50 to permit a rush order to be gotten out by means of the other unit, and when such rush order is completed the interrupted run may be resumed without the slightest embarrassment since the relation of the impression means and the plate cylinders of the temporarily displaced unit was not  
 55 changed in any way by its temporary withdrawal and subsequent replacement.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not  
 60 restrictive; reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

I claim:

1. A printing press of the multi-color rotary web type comprising a set of independent self-contained frames, each comprising impression  
 70 means and a plurality of type cylinders, the mechanisms of each set being similarly arranged but differing in the size of the type cylinders, frames

carrying inking mechanism adjustable to cooperate with such type cylinders of different sizes, the first mentioned frames of the set being readily bodily movable to place any one thereof into  
 5 cooperation with the frames carrying the inking mechanism, and means for handling a web which passes through the so cooperating assemblage.

2. A printing press of the multi-color rotary web type comprising a main base and independent frames for constituent mechanisms of the  
 10 press carried thereby including frames supporting inking mechanism longitudinally adjustable on the base to bring the mechanism into cooperation with printing cylinders and a self-contained frame carrying a plurality of plate cylinders  
 15 and cooperating impression means, said last frame being shiftable transversely of the base to permit its ready withdrawal bodily from between the frames for the inking mechanism for replacement by a similar frame having cylinders  
 20 of different dimension, the inking mechanisms being adjustable in their frames to provide for their cooperation with various sizes of cylinders.

3. A printing press of the multi-color rotary web type comprising a main base, independent  
 25 frames adapted to be supported on said base and comprising self-contained units for alternative assemblage with the base, each including an impression cylinder and a plurality of type cylinders ranged along center lines radial to the impression  
 30 cylinder, the type cylinders of the several units being of different sizes, the center lines of the cylinders in the several units being homologous, and frames carrying adjustable inking mechanisms longitudinally movable along said base for  
 35 positioning in cooperative relation with any such unit and means for handling a web which passes through a so cooperating assemblage.

4. A printing press of the multi-color rotary web type comprising a main base, shafting at a  
 40 side thereof adapted to take motion from a source of power and including a driving gear, a self-contained unit movable transversely to and from said base and into and out from cooperation with  
 45 said gear and including an impression cylinder and a plurality of plate cylinders geared together, frames shiftable longitudinally of said base carrying inking mechanisms in constant driven relation to others of said gears, and means for handling  
 50 a web passing through the press, the organization described permitting bodily interchange of self-contained units as described.

5. A printing press of the multi-color rotary web type comprising a main base and independent frames for constituent mechanisms of the press  
 55 carried thereby including frames supporting inking mechanism longitudinally adjustable on the base to bring the mechanism into cooperation with printing cylinders and a self-contained frame carrying a plurality of plate cylinders and  
 60 cooperating impression means, a movable support for said self-contained frame outward of said base, supporting means extending transversely of the base, means for engaging the frame with said  
 65 supporting means for movement therealong to remove the same bodily from the base and transfer it to said movable support for removal thereby to permit a similar self-contained unit to be moved along said supporting means and placed  
 70 on the base in cooperation with said inking mechanisms.

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