

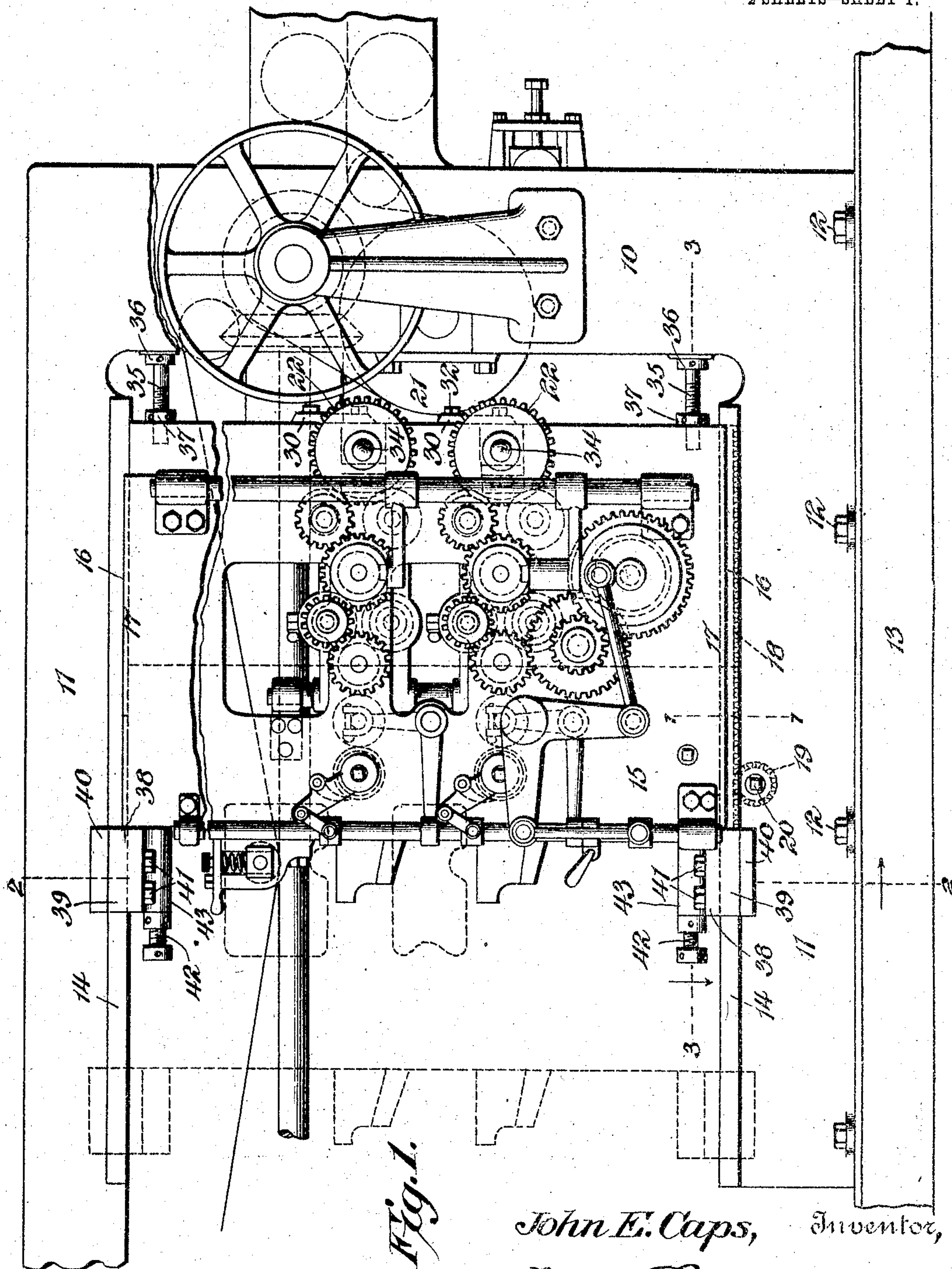
No. 786,872.

PATENTED APR. 11, 1905.

J. E. CAPS.
PRINTING PRESS.

APPLICATION FILED JUNE 8, 1903.

2 SHEETS—SHEET 1.



Witnesses
Howard W. Orr
B. G. Foster

John E. Caps, Inventor,

By

E. G. Siggers

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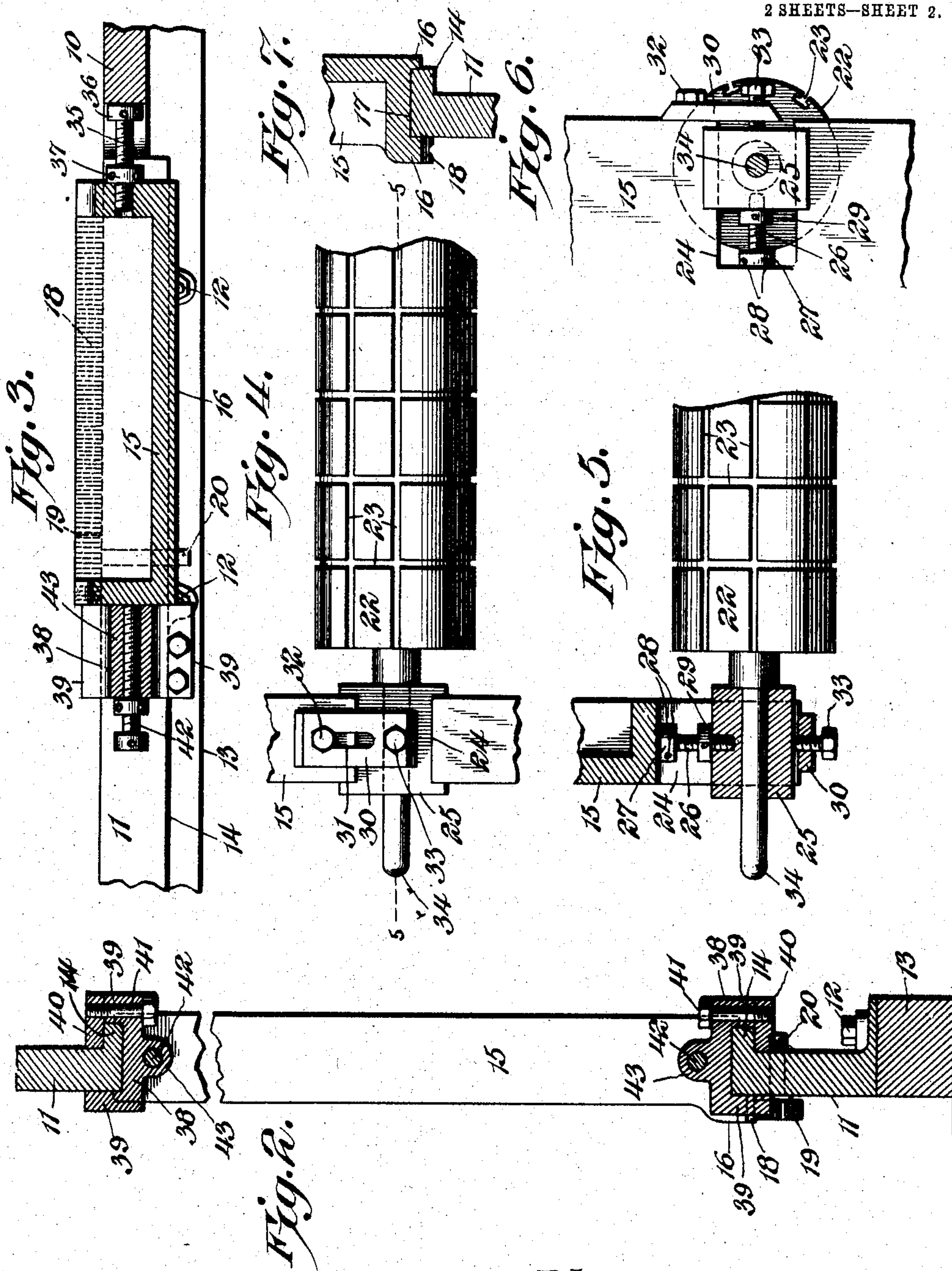
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UNITED STATES PATENT OFFICE.

JOHN EDWARD CAPS, OF KANSAS CITY, MISSOURI.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 786,872, dated April 11, 1905.

Application filed June 8, 1903. Serial No. 160,579.

To all whom it may concern:

Be it known that I, JOHN EDWARD CAPS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented a new and useful Printing-Press, of which the following is a specification.

Heretofore in color-printing machines and, in fact, presses of various types considerable difficulty has been experienced in changing the forms. This is usually an operation requiring considerable time, and while movable carriages carrying portions of the mechanisms have been devised it has, nevertheless, demanded the service of experts to readjust the various elements after the desired changes have been made. Such changes therefore are rather expensive, as they necessitate the stoppage of the press for a considerable length of time, besides the employment of skilled workmen.

It is the object of the present invention to overcome these various objections by providing mechanism which will permit the ready disassociation of the elements and their reassembly without undue loss of time and without the particular necessity of expert workmen. To this end relatively movable supports are employed carrying different portions of the mechanism, which portions can thus be separated to permit access to the printing-cylinders. Said cylinders are removable bodily from the structure and are so mounted that when replaced and the parts again moved into operative position the various elements will assume their proper relation with respect to one another. However, should it become necessary to adjust any of the parts efficient means of a very simple nature is provided for this purpose, and said adjusting means is entirely accessible.

Other important features of the invention relate to means for locking the parts in operative position, said means securely holding the apparatus against accidental displacement.

The embodiment illustrated in the accompanying drawings and described in the following specification is at present believed to be

the most desirable; but the claims hereto appended are drawn broadly enough to include various changes and modifications from the structure set forth, and the invention is therefore not limited to the details of construction shown and described.

In the drawings, Figure 1 is a side elevation of the improved press. Fig. 2 is a vertical sectional view through one side of the frame and carriage and taken on the line 2 2 of Fig. 1. Fig. 3 is a horizontal sectional view on the line 3 3 of Fig. 1. Fig. 4 is a detail end elevation illustrating the manner of mounting the printing-cylinders. Fig. 5 is a horizontal sectional view taken on the line 5 5 of Fig. 4. Fig. 6 is a side elevation of the same. Fig. 7 is a detail sectional view taken on the line 7 7 of Fig. 1.

Similar reference-numerals indicate corresponding parts in all the figures of the drawings.

In the embodiment herewith set forth a suitable stationary frame is employed, comprising standards 10 and upper and lower tracks 11, the lower tracks being bolted, as shown at 12, to a suitable bed or base 13. The operative faces of the tracks are arranged in opposing relation and are provided with overhanging treads 14. A carriage 15, comprising a suitable frame, is movably mounted in the stationary frame between the tracks 11 and is provided with upstanding and depending spaced flanges 16, forming guides 17, that slidably engage the tracks 11. The carriage is thus movable toward and from the standards 10, and in order to accomplish this movement one of the depending flanges 16 is provided with a suitable rack 18, engaged by an actuating-pinion 19, mounted on a stub-shaft 20, that is journaled in the lower track and has an angular outer end adapted to be engaged by an operating wrench or tool.

Mounted upon the standards 10 is suitable impression mechanism, preferably in the form of cylinders 21, only one of which is shown, though it will be seen by those skilled in the art that any number may be employed as desired. It is believed to be unnecessary to go

into further detail regarding this mechanism, as it constitutes no part of the present invention when considered by itself. Upon the adjacent portion of the carriage is mounted the printing mechanism, preferably comprising cylinders 22, having suitable grooves 23 to permit the securing of the forms or type-plates thereon. It will be also understood that any number of these printing-cylinders may be employed, and the inking mechanism coacting with the cylinders is preferably located on the carriage in rear of the same.

One of the improved features of the invention relates to the means for mounting the printing-cylinders 22. It will be observed that seats 24 are formed in the side of the carriage adjacent to the standards, and in these seats are slidably mounted boxings 25, that can be adjusted by screws 26, threaded into the inner sides of the boxings and having heads 27 bearing against the rear walls of the seats, said heads being provided with sockets 28, arranged to receive an actuating device. Jam-nuts 29 are threaded upon the adjusting-screws and bearing against the boxings serve to prevent accidental rotation of said screws. The boxings are held against displacement by means of retaining-clips 30, which, as shown in Fig. 4, are provided with longitudinal slots 31, and through these slots are passed holding-bolts 32, threaded into the carriage. Through the lower ends of the retaining-clips are passed clamping-screws 33, that bear against the outer faces of the boxings, and thus prevent any play of the same. The printing-cylinders 22 have elongated gudgeons, which are journaled in the boxings 25 and passing through the same project a considerable distance beyond, forming handles 34. It will be seen that with this structure when the carriage is moved back from the impression mechanism the printing-cylinders may be bodily removed by first displacing the retaining-clips. The boxings are removable with the cylinders, and therefore as they carry the adjusting devices it will be evident that when said cylinders are replaced they will properly position themselves upon the carriage, so that when said carriage is again moved forwardly the printing-cylinders will assume their proper relations with respect to the impression-cylinder and without particular adjustment. At the same time should such adjustment be necessary it can be readily obtained by turning the screws 26. After the adjustment has been obtained the clamp-screws 33 being turned up against the boxings readily fasten said boxings against movement upon the carriage. This portion of the structure therefore has decided advantages in that a plurality of cylinders may be employed and one set may be prepared with printing-plates while another set is in operation, so that when a change is desired the set may be removed from the ma-

chine and replaced by a new one without serious loss of time.

In order to properly position the carriage with respect to the impression mechanism, adjustable stops in the form of screws 35 are threaded into the end of the carriage adjacent to the standards and are provided with heads 36, which are arranged to abut against said standards. Jam-nuts 37 are preferably employed to hold the screws against accidental movement. These stops are arranged upon the upper and lower ends of the carriage, so that when said carriage is in its forward position it will be firmly fixed. It will be evident that by adjusting the screws the distance between the carriage and the standards, and consequently the relation of the printing and impression cylinders, can be readily and quickly changed. Means of a novel nature are also employed for locking the carriage in its operative position. These means are in the form of sliding locks located in the rear of the carriage and fitted upon the tracks 11. Said locks each comprises a section 38, that rests upon the tread of the tracks and flanges 39, embracing the same, while another section 40 engages the offset face of the overhanging flange 14 of the tracks and is secured to the first-mentioned section by bolts 41. A clamping-screw 42 is threaded through an outstanding ear 43 on the section 38 of the lock and is arranged to bear against the rear face of the carriage. These locks are preferably employed on all the tracks.

It is believed that from the foregoing description the operation of the apparatus will be entirely clear. When in operative relation, the carriage is located adjacent to the standards, so that the printing and impression cylinders are in coacting relation. In separating said cylinders the locks are first unclamped from the tracks by loosening the bolts 41, and thereupon the carriage may be moved backwardly through the medium of the rack and pinion. The printing-cylinders can thereupon be removed, as already described, and when replaced by others the carriage is returned to its original position, or, in other words, until the stops engage the standards. This, as above set forth, properly positions the elements, and after the locks have been returned and clamped said carriage is securely fastened by moving the screws 42 inwardly against the same. By means of these various devices, therefore, the carriage is absolutely fixed, so that it cannot become in any manner displaced by the vibration or motion of the parts. At the same time it can be readily released and moved when desired. With a structure of this sort little time is lost in changing forms, and, moreover, such changes do not require the services of an expert even should adjustments be required, as of course may become necessary from wear or other causes.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a printing-press, the combination with a fixed support, of impression mechanism mounted on the support, a carriage movable toward and from the support, inking mechanism mounted upon the carriage and movable with the same, and a printing-cylinder detachably mounted on the carriage and located between the inking mechanism and impression mechanism, said printing-cylinder being movable with the carriage and removable from the same when said carriage is separated from the support.

2. In a printing-press, the combination with relatively movable supports, of an impression-cylinder journaled on one of the supports, inking mechanism mounted on the other support, separate sets of seats formed in the support carrying the inking mechanism and opening away from said mechanism and toward the impression-cylinder, and a plurality of printing-cylinders coacting with the impression-cylinder and detachably mounted in the seats, said printing-cylinders being removable in a direction away from the inking mechanism and toward the impression-cylinder when the supports are separated.

3. In a printing-press, the combination with an impression-cylinder, of a carriage movable toward and from the impression-cylinder, and a plurality of printing-cylinders removably mounted on that portion of the carriage which is adjacent to the impression-cylinder, said printing-cylinders coacting with the impression-cylinder at separate points and being removable from the carriage when separated from the said impression-cylinder.

4. In a printing-press, the combination with a fixed support, of an impression-cylinder journaled thereon, a carriage movable toward and from the fixed support and having seats that open toward the same, said seats being located in the side of the carriage that is adjacent to the impression-cylinder, inking mechanism mounted on the carriage in rear of the seats, journal-boxes detachably fitted in the seats and removable through the open sides thereof when the carriage is separated from the fixed support, and a printing-cylinder journaled in and removable with the boxes.

5. In a printing-press, the combination with a stationary supporting-frame, of an impres-

sion-cylinder journaled on the supporting-frame, a carriage slidably mounted on the supporting-frame and movable toward and from the impression-cylinder, a plurality of printing-cylinders journaled on that portion of the carriage which is adjacent to the impression-cylinder, separate inking mechanisms journaled upon the carriage and coacting with the portions of the printing-cylinders that are opposite the impression-cylinder, said carriage being movable to carry the inking mechanisms and printing-cylinders toward and from the impression-cylinder and the printing-cylinders into and out of coaction with different portions of the impression-cylinder, and means for detachably supporting the printing-cylinders upon the carriage, said printing-cylinders being removable when the carriage is separated from the impression-cylinder.

6. In a printing-press, the combination with a pair of relatively movable supports, of impression mechanism mounted on one of the supports, a plurality of printing-cylinders separately mounted on the other support and coacting with the impression mechanism, and means for independently adjusting the printing-cylinders on their support in a direction transversely of their axes of rotation, toward and from the impression mechanism, said support and cylinders being movable to simultaneously carry the latter into and out of coaction with the impression mechanism.

7. In a printing-press, the combination with relatively movable supports, of impression mechanism mounted on one of the supports, the other support having a seat that opens toward the first-mentioned support, a boxing detachably mounted in said seat and removable therefrom when the supports are separated, means projecting into the seat from the opposite sides and engaging the opposite sides of the boxing for adjusting the same therein, a printing-cylinder journaled in the boxing, and a retaining-clip secured to the support and extending over the open side of the seat.

8. In a printing-press, the combination with a support, of an impression-cylinder journaled therein, a carriage movable toward and from the impression-cylinder and having an open-sided seat that opens toward the impression-cylinder, a boxing detachably mounted in the seat and removable therefrom when the carriage is separated from the impression-cylinder, a printing-cylinder journaled in the boxing, a retaining-clip movably secured to the carriage and extending over the open side of its seat, a clamp disposed between the clip and boxing, and a clamp arranged between the boxing and the rear wall of the seat.

9. In a printing-press, the combination with an impression-cylinder, of a support having a seat that opens toward the impression-cylinder, a boxing slidably mounted in the seat, an adjusting-screw threaded in the boxing and

bearing against the rear wall of the seat, a retaining-clip secured over the open side of the seat between the boxing and impression-cylinder, a holding-screw threaded through the clip and bearing against the boxing, and a printing-cylinder journaled in the boxing.

10. In a printing-press, the combination with a stationary support carrying an impression-cylinder, of a carriage movable toward and from the support, boxings removably fitted on the carriage, and a printing-cylinder having gudgeons journaled in the boxings, said gudgeons projecting beyond the carriage and forming hand-grips by which the cylinder and boxings may be carried.

11. In a printing-press, the combination with upper and lower tracks, of a carriage arranged between and movably engaging the tracks, and means engaging the upper and lower portions of the carriage for securing the same against movement.

12. In a printing-press, the combination with upper and lower oppositely-disposed tracks, of a carriage arranged between and having upper and lower guides that slidably engage the tracks, and devices slidably mounted on the tracks for holding the carriage against movement thereon.

13. In a printing-press, the combination with upper and lower tracks, of a carriage arranged between and movably engaging the tracks, means for actuating the carriage, and clamps arranged to be secured against movement on the tracks and engage the carriage to hold the same against movement.

14. In a printing-press, the combination with a frame comprising standards and upper and lower tracks connected therewith, of impression mechanism mounted on the standard between the tracks, a carriage fitted between the tracks and movable toward and from the standards, printing mechanism mounted on the carriage and movable therewith into and out of coacting relation with the impression mechanism, and means engaging the upper and lower tracks and the carriage to hold the printing mechanism in coaction with the impression mechanism.

15. In a printing-press, the combination with a frame, comprising spaced standards, of an impression-cylinder journaled to intermediate portions of the standards and located between them, upper and lower sets of tracks extending from the standards, a carriage arranged between the tracks and having guides that slidably engage the same, and a printing-cylinder and inking mechanism carried by the carriage, said printing-cylinder and inking mechanism being movable therewith into and out of coaction with the impression-cylinder.

16. In a printing-press, the combination with standards having offset-tracks, of impression mechanism mounted on the standards, a carriage slidably mounted on the tracks

and movable toward and from the impression mechanism, printing mechanism mounted on the carriage and movable therewith into and out of coaction with the impression mechanism, and stops adjustably mounted on the carriage and arranged to abut against the standards, said stops limiting the movement of the carriage toward the standards and positioning the printing mechanism with respect to the impression mechanism.

17. In a printing-press, the combination with relatively movable supports, of impression mechanism mounted on one of the supports, separate printing-cylinders mounted on the other support, means for independently adjusting the cylinders upon their support toward the impression mechanism, and means for adjustably positioning the support carrying the printing mechanism with respect to the other support whereby both of the printing-cylinders can be simultaneously positioned in coacting relation with the impression mechanism.

18. In a printing-press, the combination with a track, of a carriage movably mounted thereon, and a lock also movably mounted on the track and arranged to hold the carriage against movement.

19. In a printing-press, the combination with a track, of a carriage movably mounted thereon, a lock also movably mounted on the track and arranged to hold the carriage against movement, and means for securing the lock to the track.

20. In a printing-press, the combination with a track, of a carriage movably mounted thereon, a lock arranged to hold the carriage against movement, and a clamping device interposed between the lock and carriage.

21. In a printing-press, the combination with a track, of a carriage movably mounted thereon, a lock arranged to hold the carriage against movement, and a clamping device carried by the lock and arranged to bear against the carriage.

22. In a printing-press, the combination with a movable carriage, of a lock for holding the carriage against movement, and a clamping-screw threaded on the lock and arranged to bear against the carriage.

23. In a printing-press, the combination with a track having an overhanging tread, of a carriage movably mounted on the track, and a lock for the carriage also movably mounted on the track and arranged to clamp upon the overhanging tread.

24. In a printing-press, the combination with a track having an overhanging tread, of a carriage movably mounted on the track, and a lock for the carriage also movably mounted on the track and comprising sections that engage the opposite sides of the overhanging tread.

25. In a printing-press, the combination

with a frame comprising standards and horizontal tracks, of an impression-cylinder journaled upon the standards, a carriage movably mounted on the tracks, adjustable stops interposed between the carriage and the standards, and locks movably mounted on the tracks in rear of the carriage.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN EDWARD CAPS.

Witnesses:

L. J. RIDDLE,
M. F. BOGAR.