

No. 637,579.

Patented Nov. 21, 1899.

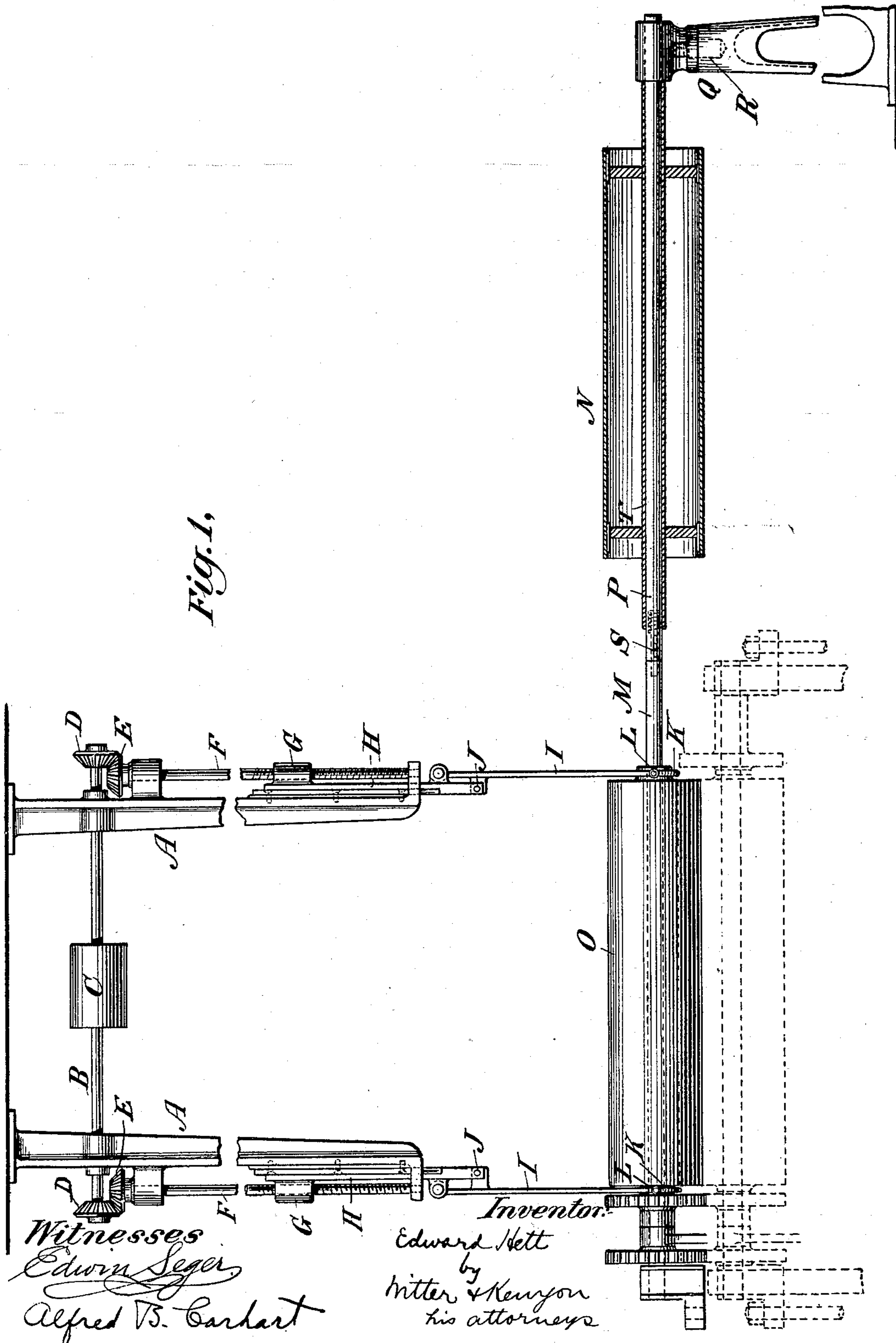
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(Application filed June 13, 1895. Renewed July 12, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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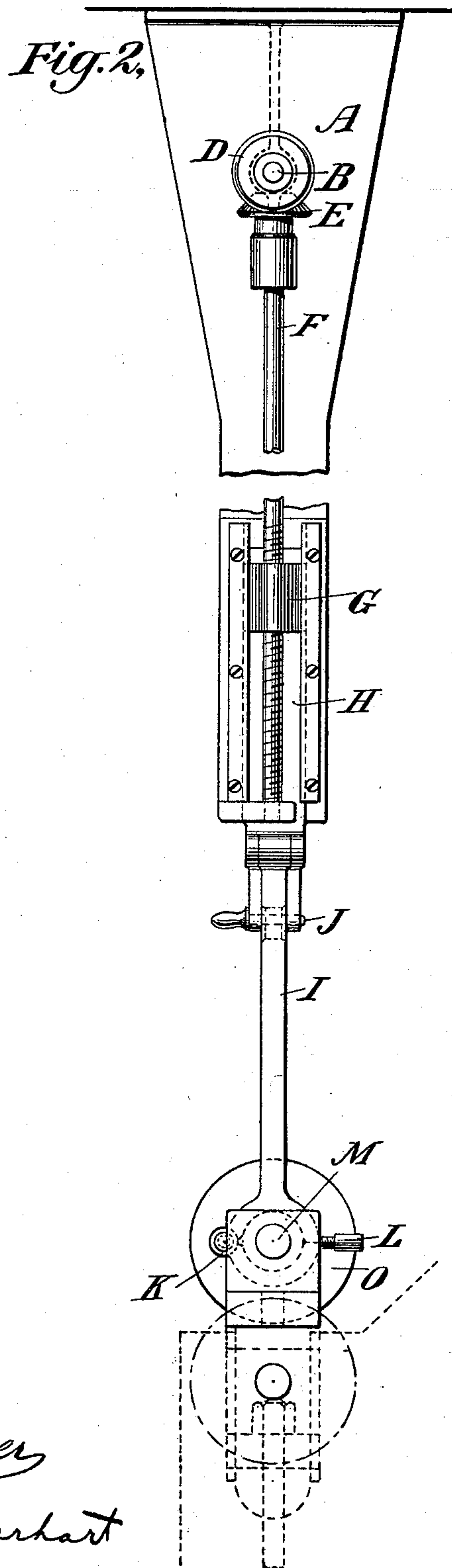
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(No Model.)

2 Sheets—Sheet 2.



Witnesses:

Edwin Seger

Alfred B. Carhart

Inventor:

Edward Hett

by
Nitter & Kenyon
his attorneys

UNITED STATES PATENT OFFICE.

EDWARD HETT, OF NEW YORK, N. Y.

APPARATUS FOR HANDLING PRINTING-CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 637,579, dated November 21, 1899.

Application filed June 13, 1895. Renewed July 12, 1898. Serial No. 685,764. (No model.)

To all whom it may concern:

Be it known that I, EDWARD HETT, a citizen of the United States, and a resident of New York, (New Dorp,) in the county of Richmond and State of New York, have invented a certain new and useful Improvement in Apparatus for Handling Printing - Cylinders, of which the following is a specification.

The invention has special reference to printing and transfer presses in which the printing surface or form or the support therefor is a hollow cylinder or tubular covering or shell which for use is slipped onto the permanent shaft of the machine and is fixed to the same and revolves in use with said permanent shaft.

The invention is in the nature of an adjunct to such a press, and has for its object the ready and convenient handling of such tubular printing or lithographic surfaces or such tubular form-cylinders and the introduction of the same into and the removal of the same from operative position in the press.

The invention consists of the devices herein shown and claimed.

In the accompanying drawings, which form a part hereof, Figure 1 is a view, partly sectional, of an apparatus embodying my invention shown in connection with the adjacent parts of a press; and Fig. 2 is an end view of the same.

In the preferred form of my invention shown in the drawings I employ means for moving the permanent shaft, carrying an inner tubular form-cylinder and an outer printing-tube out of its operative position in the press sufficiently to permit of the ready removal from it or the placing upon it of a printing-tube or the inner supporting form-cylinder therefor. Referring to the specific form of apparatus shown in the drawings for this purpose, A A are two brackets pendent from the ceiling, carrying the driving-shaft B of a hoisting apparatus. The brackets are suitably placed over the press, or they may in any desired way be framed together and caused to run upon an overhead railway, so as to be movable from one part of the shop to another. The shaft B carries a pulley C, from which it receives motion in either direction, and beveled gear-wheels D D, which mesh with correspondingly-beveled gear-wheels E E, mount-

ed on upright screw-shafts F F, carried in the brackets A A. Screw-threaded nuts G G travel up and down on the screw-shafts F as the latter are rotated in one direction or the other. These traveling nuts G carry hoisting-arms H, which slide up and down in suitable grooves in the brackets A and the lower portions of which, I, are hinged to the upper portions, so that they may be swung up out of the way. The bolts J J fasten the arms I in their lowest position. These arms I carry at their lower ends a divided collar K, the fixed and the movable parts of the collar being suitably hinged at one side and capable of being suitably fastened together at the other side, the special means for holding them together shown in the drawings consisting of a split screw-bolt at the side of the collar, formed partly by the fixed part and partly by the movable part of the collar, onto which bolt when its parts are united the nut L screws. These collars K are adapted to inclose the permanent shaft of the press at or near its ends, so that when suitably inclosing or grasping the ends of said shaft and when the shaft and its connected parts are loosened from the press the revolving of the pulley C in the proper direction will raise the entire permanent shaft, together with its encircling form-cylinder and printing-tube or other tubular covering or shell that may be upon it. The permanent shaft of the machine is lettered M in the drawings. It is there shown in its raised position, the dotted lines indicating its position when lowered onto the press for its normal operation in use there.

N is the printing-tube, which in use is an outer tubular covering or shell carried upon an inner tubular shell or form-cylinder O. The printing-tube N is in the case supposed removable from the form-cylinder, and the latter is also removable from the permanent shaft.

The specific form of devices shown in the drawings for enabling a printing-tube or form-cylinder to be removed from or to be placed upon a permanent shaft are as follows:

P is a receiving-shaft. It is mounted on a standard or frame Q at proper height to be exactly opposite the permanent shaft M when the latter is in its raised position and so that when the two shafts are united end to end

they form one straight shaft. This receiving-shaft P is pivotally mounted in the standard Q, its mountings turning upon the pivot R, seated in the top of that standard. This receiving-shaft P has suitable clutch mechanism S, adapting it to be firmly clutched to the permanent shaft M at one end of the same. In the drawings this receiving-shaft P is represented as carrying a printing-tube holder T and the latter as carrying a printing-tube N. This printing-tube holder T has an inner tube snugly fitting the receiving-shaft P, so as to be readily slipped on and off of the same. This inner tube carries two holders, one near each end, adapted to slip inside the printing-tube and hold it. The printing-tube holder is longer than the printing-tube, the extension of its inner tube at each end furnishing handles convenient for handling the whole when the printing-tube is on it.

The drawings represent the permanent shaft of the press as having been grasped and raised from its operative position in the press and the parts at one end beyond where it is grasped as having been slipped off, the receiving-shaft as having had a printing-tube holder mounted upon it and as having then been swung around toward the end of the raised permanent shaft and its end clutched with the said end of the permanent shaft, the hinged hoisting-arm I as having been swung up out of the way, the printing-tube as having been then slipped along the composite shaft M P from the form-cylinder O onto the printing-tube holder T, and the arm I as having been again lowered and its collar again fastened around the shaft M. The next step in the use of the apparatus is to unclutch the two shafts M and P and to swing the shaft P around on the pivot R, and the printing-tube holder T, with the printing-tube N upon it, may then be removed and stored or otherwise treated, as desired. If it be desired to place another and different printing-tube on the form-cylinder O, that printing-tube on its proper printing-tube holder is slipped onto the receiving-shaft P, that shaft is swung around into engagement with the shaft M, the hinged arm I of the intermediate hoisting-arm is swung up from the permanent shaft, as before, the printing-tube is slipped along the composite shaft from one holder, T, to the other holder, O, the arm I, that had been raised, is lowered and made to again grasp the shaft M, the two shafts are then unclutched, the permanent shaft M receives the necessary parts that had been removed from it and is then lowered into operative position in the press and secured there, and both the arms I are unfastened from it and screwed up out of the way.

The special printing-tube holder T that is shown is light in construction and possesses certain advantages. The two holders hold and support the printing-tube and are themselves held by the long inner tube which snugly fits the receiving-shaft P, and for a

permanent holding of which shafts similar to P, but permanently mounted, may be employed. Printing-tubes can thus be conveniently stored and preserved from damage and by means of the pivoted receiving-shaft P can be conveniently and safely handled. The greater length of the inner tube of the printing-tube holder T over that of the printing-tube itself furnishes projecting parts at each end that may be used as handles and generally in manipulating the holder. The standard Q, carrying the pivotally-mounted receiving-shaft, may be movable—as, for instance, it may be mounted on a railway or simply on wheels. The receiving-shaft P may be in any suitable way counterbalanced on the standard Q and variably counterbalanced under the varying conditions of the load that it carries. Again, the receiving-shaft P need not necessarily or in all cases be pivotally mounted, although I prefer that construction. It should be so mounted, however, as to be clutched with the permanent shaft M of the machine in one of the positions of the latter under the action of the hoisting apparatus and to be removable or unclutchable therefrom, according to the operation desired.

If it were desired to remove the form-cylinder O from the permanent shaft M of the press, the printing-tube holder T would be simply removed from the receiving-shaft P, and that receiving-shaft would then be coupled up with the permanent shaft M, one of the arms I raised, and the entire form-cylinder slipped along the composite shaft M P.

For the purposes of the broad claims herein made the permanent shaft of the machine would be the actual shaft proper or that shaft together with so much of a covering or shell carried upon it as was not purposed to be slipped off, but was purposed to be kept on the shaft, and the receiving-shaft might manifestly be not a shaft proper, but a frame, for instance, of a diameter corresponding to the part of the permanent machine that it was not purposed to slip off and fitting it to receive the part that it was purposed to slip off.

Where it is necessary to move a permanent shaft out of its operative position in the press in order to permit of the removal therefrom or the placing thereupon of a printing-tube or supporting form-cylinder, I prefer to use the devices shown and described as used for that purpose, although of course any other suitable devices for this purpose may be employed without departing from my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, substantially as described, of a hoisting mechanism having hoisting-arms and means adapting them to be raised or lowered as desired and to carry a permanent shaft of a machine, and a separate receiving-shaft suitably mounted and means adapting it to be temporarily secured to, and so as to prolong, the permanent shaft at one

of its ends but removable from said permanent shaft, whereby a hollow cylinder on the permanent shaft of the machine or any tubular covering or shell thereon may first be
 5 raised with the permanent shaft and then slipped off from said shaft onto the separate receiving-shaft and removed, or a hollow cylinder or tubular covering or shell may be put
 10 onto the separate receiving-shaft and then slipped off from it onto the permanent shaft and the latter then lowered into operative position in the machine.

2. The combination, substantially as described, with the form-cylinder of a press having separable tubular printing-surfaces, of a
 15 hoisting mechanism having hoisting-arms and means adapting them to be raised or lowered as desired and to carry the form-cylinder, and a separate receiving-shaft and a removable printing-tube holder carried thereon, the
 20 receiving-shaft being suitably mounted and means adapting it to be temporarily secured to, and so as to prolong, the shaft of the form-cylinder at one of its ends but removable from
 25 said shaft, whereby tubular printing-surfaces may be placed upon or removed from the form-cylinder.

3. The combination, substantially as described, with a press having a shaft carrying
 30 a separable hollow cylinder, tubular covering or shell, of a screw hoisting mechanism having hoisting-arms and means adapting them to be raised or lowered as desired, and to carry the said shaft, and a separate receiving-shaft
 35 suitably mounted and means adapting it to be temporarily secured to, and so as to prolong, the shaft of the press at one of its ends, but removable therefrom.

4. The combination, substantially as described, of a hoisting mechanism having hoisting-arms and means adapting them to be
 40 raised or lowered as desired, and to carry a permanent shaft of a machine, and a separate receiving-shaft pivotally mounted upon a suitable stand and means adapting it to be temporarily secured to, and so as to prolong,
 45 the permanent shaft at one of its ends, but removable therefrom.

5. The combination, substantially as described, with the form-cylinder of a press having separable tubular printing-surfaces, of a
 50 hoisting mechanism having hoisting-arms and means for adapting them to be raised or lowered as desired and to carry the form-cylinder, and a separate receiving-shaft and a removable printing-tube holder carried thereon, the
 55 receiving-shaft being pivotally mounted upon a suitable stand and means adapting it to be temporarily secured to, and so as to prolong, the shaft of the form-cylinder at one of its
 60 ends but removable from said shaft, whereby tubular printing-surfaces may be placed upon or removed from the form-cylinder.

6. The combination, substantially as described, of a screw hoisting mechanism having
 65 hoisting-arms and means adapting them to be raised or lowered as desired, and to carry a

permanent shaft of a machine, and a separate receiving-shaft pivotally mounted upon
 a suitable stand and means adapting it to be
 70 temporarily secured to, and so as to prolong the permanent shaft at one of its ends but removable therefrom.

7. The combination with a removable hollow printing-tube N, and a suitable receiving-
 75 shaft P, of a printing-tube holder T having two holders fitted to receive and removably hold the hollow printing-tube and having also an inner tube carrying the said two holders
 80 and fitted to slip onto and be removably held on the receiving-shaft, said inner tube being prolonged at its ends to form holding or grasping devices, substantially as described.

8. The combination in a press of a permanent shaft adapted to carry a hollow tubular
 85 printing form or tube or support therefor, a separate receiving-shaft suitably mounted and arranged to be moved into and be held in fixed alinement with the permanent shaft
 90 and to be moved therefrom, and means for moving it into and holding it in such alinement and moving it therefrom, whereby a hollow cylinder on the permanent shaft of
 95 the press or any tubular covering or shell thereon may be slipped off from said shaft onto the separate receiving-shaft and be removed or a hollow cylinder or tubular covering
 100 or shell may be put onto the separate receiving-shaft and be then slipped off from it onto the permanent shaft.

9. The combination in a press of a permanent shaft adapted to carry a hollow tubular
 printing form or tube or support therefor, a separate receiving-shaft suitably mounted,
 105 and means adapting it to be temporarily secured to, so as to prolong, the permanent shaft at one of its ends but removable from said permanent shaft, whereby a hollow cylinder
 110 on the permanent shaft of the press or any tubular covering or shell thereon may be slipped off from said shaft onto the separate receiving-shaft and be removed, or a hollow
 115 cylinder or tubular covering or shell may be put onto the separate receiving-shaft and be then slipped off from it onto the permanent shaft.

10. The combination in a press of a permanent shaft adapted to carry a hollow tubular
 printing form or tube or support therefor, a separate receiving-shaft pivotally mounted
 120 upon a suitable stand, and means adapting it to be temporarily secured to, so as to prolong, the permanent shaft at one of its ends but removable from said permanent shaft, whereby a hollow cylinder
 125 on the permanent shaft of the press or any tubular covering or shell thereon may be slipped off from said shaft onto the separate receiving-shaft and be removed, or a hollow cylinder or tubular
 130 covering or shell may be put onto the separate receiving-shaft and be then slipped off from it onto the permanent shaft.

11. The combination in a press of a permanent shaft adapted to carry a hollow tubular

printing form or tube or support therefor, a separate receiving-shaft and a removable printing-tube holder carried thereon, the receiving-shaft being pivotally mounted upon a suitable stand, and means adapting it to be temporarily secured to, and so as to prolong, the shaft of the form-cylinder at one of its ends but removable from said shaft, whereby tubular printing-surfaces may be placed upon or removed from the form-cylinder.

12. The combination in a press of a permanent shaft adapted to carry a hollow tubular printing form or tube or support therefor, means for moving said permanent shaft out of its operative position in the press sufficiently to permit of the removal from it of the tubular printing form or tube or support therefor, a separate receiving-shaft suitably mounted and arranged to be moved into and to be held in fixed alinement with the permanent shaft when the latter is in its outward position, and to be moved therefrom, and means for moving it into and holding it in such alinement and moving it therefrom, whereby a hollow cylinder on the permanent shaft of the press or any tubular covering or shell thereon may be slipped off from said shaft onto the separate receiving-shaft and be removed, or a hollow cylinder or tubular covering or shell may be put onto the separate receiving-shaft and be then slipped off from it onto the permanent shaft.

13. The combination in a press of a permanent shaft adapted to carry a hollow tubular printing form or tube, means for moving said permanent shaft out of its operative position in the press sufficiently to permit of the removal from it of the tubular printing form or tube, a separate receiving-shaft suitably mounted and arranged to be moved into and to be held in, fixed alinement with the permanent shaft when the latter is in its outward position and to be moved therefrom, a removable printing-tube holder carried thereon, and means for moving the separate receiving-shaft into and holding it in such alinement and for moving it therefrom, whereby a hollow tubular printing form or tube may be

slipped off from the permanent shaft onto the removable printing-tube holder and be removed or a hollow tubular printing form or tube may be placed upon the removable printing-tube holder and the separate receiving-shaft and then be slipped off from them onto the permanent shaft.

14. The combination in a press of a permanent shaft adapted to carry a hollow tubular printing form or tube, means for moving said permanent shaft out of its operative position in the press sufficiently to permit of the removal from it of the tubular printing form or tube, a separate receiving-shaft pivotally mounted upon a suitable stand so as to be adapted to be moved into and to be held in, fixed alinement with the permanent shaft when the latter is in its outward position and to be moved therefrom, a removable printing-tube holder carried thereon, and means for moving the separate receiving-shaft into and holding it in such alinement and for moving it therefrom, whereby a hollow tubular printing form or tube may be slipped off from the permanent shaft onto the removable printing-tube holder and be removed or a hollow tubular printing form or tube may be placed upon the removable printing-tube holder and the separate receiving-shaft and then be slipped off from them onto the permanent shaft.

15. The combination in a press, of a shaft adapted to carry a hollow printing-form or support therefor, a separate receiving-shaft suitably mounted and adapted to be moved into fixed alinement with the first-mentioned shaft and to be moved therefrom and means for so moving it, whereby a hollow printing-form or support therefor may be slipped off from one shaft onto the other and so be removed from or be placed in the press.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD HETT.

Witnesses:

CHARLES S. MILLER,
ALFRED B. CARHART.