

No. 701,545.

Patented June 3, 1902.

C. P. COTTRELL.

INKING APPARATUS FOR PRINTING MACHINES.

(Application filed Nov. 1, 1901.)

(No Model.)

2 Sheets—Sheet 1.

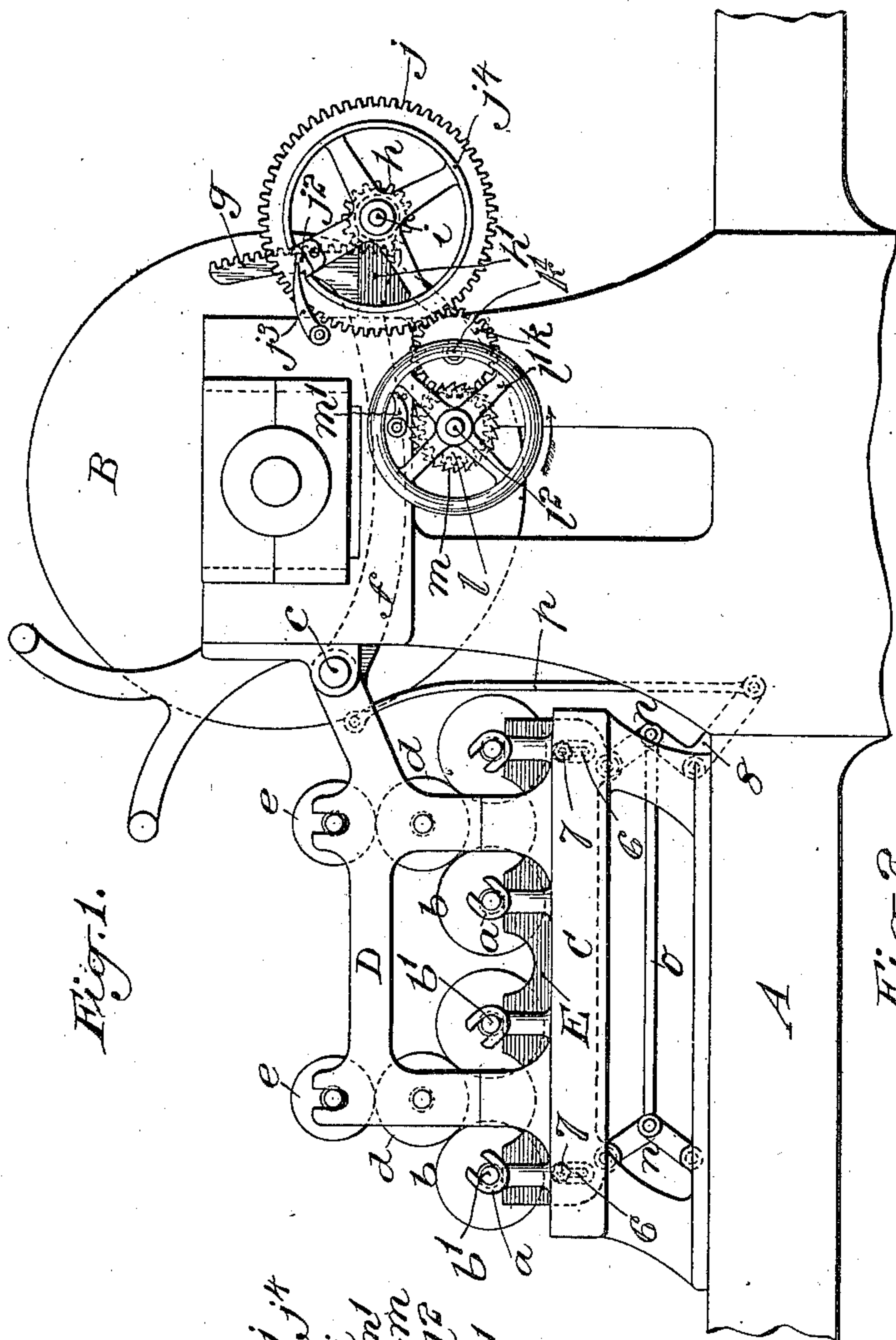


Fig. 1.

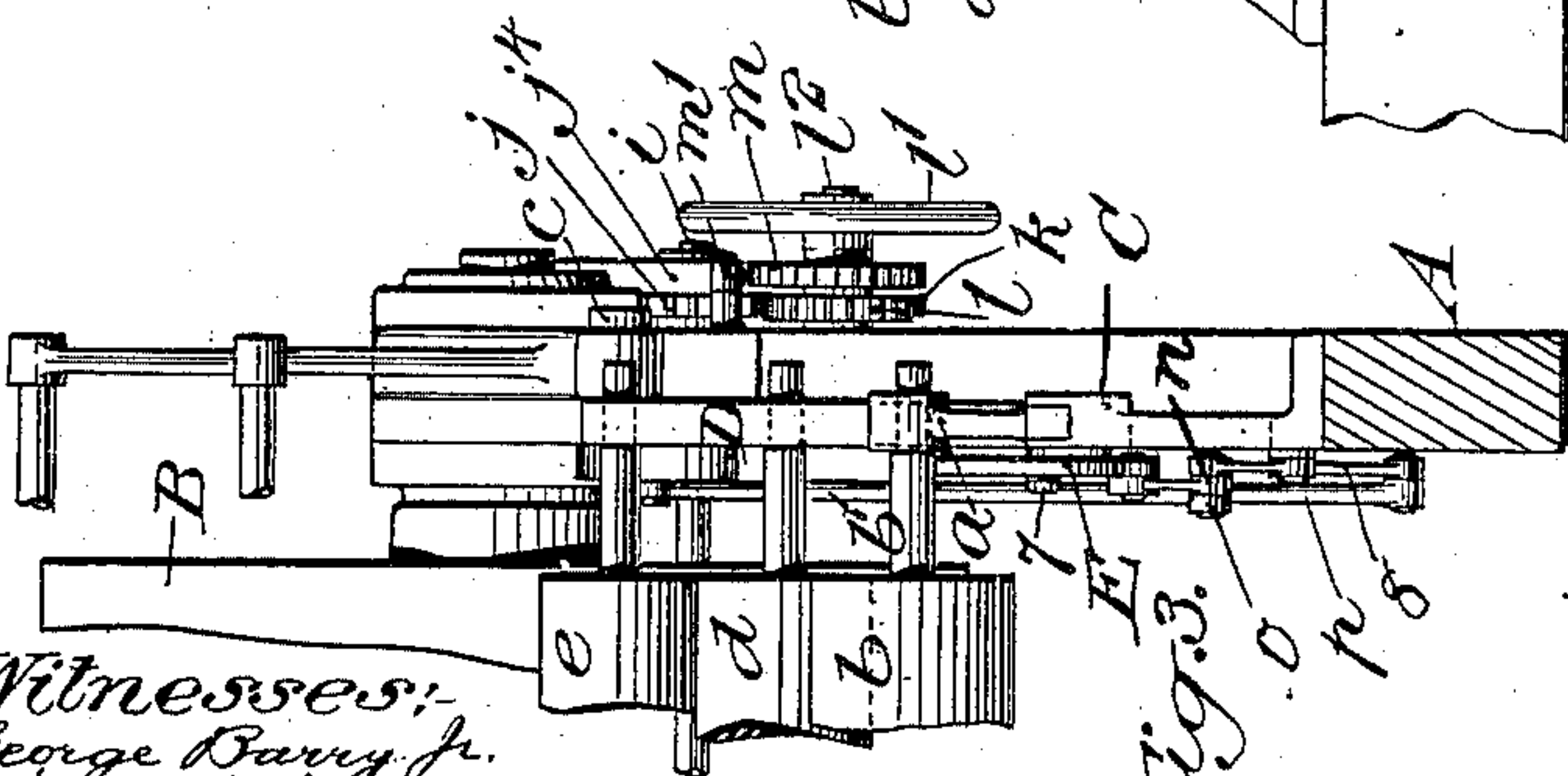


Fig. 3.

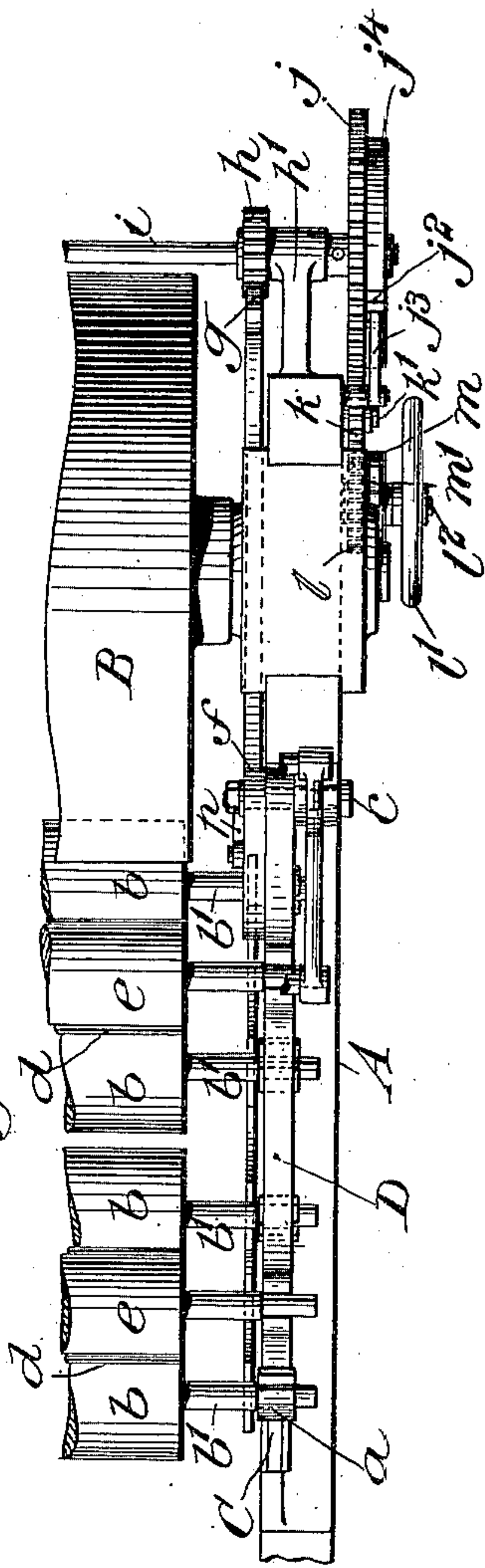


Fig. 2.

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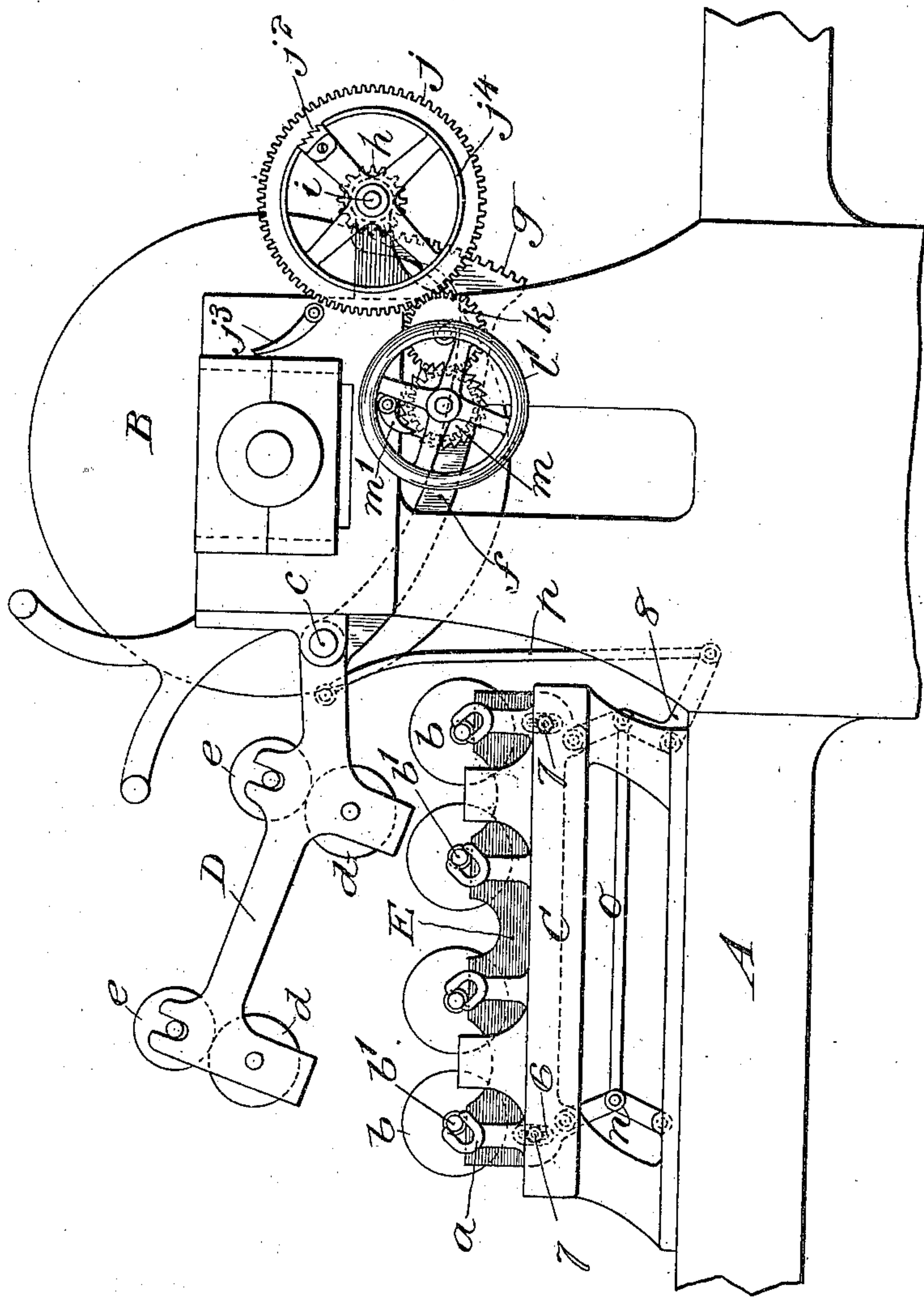
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2 Sheets—Sheet 2.

Fig. 4.



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# UNITED STATES PATENT OFFICE.

CHARLES P. COTTRELL, OF WESTERLY, RHODE ISLAND, ASSIGNOR TO C. B. COTTRELL & SONS COMPANY, OF NEW YORK, N. Y., AND STONINGTON, CONNECTICUT, A CORPORATION OF NEW JERSEY.

## INKING APPARATUS FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 701,545, dated June 3, 1902.

Application filed November 1, 1901. Serial No. 80,722. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES P. COTTRELL, a citizen of the United States, and a resident of Westerly, in the county of Washington and State of Rhode Island, have invented a new and useful Improvement in Inking Apparatus for Printing-Machines, of which the following is a specification.

This invention relates to devices for lifting and locking what are known as the "roller-stand tops" which contain the distributing-rollers in the inking apparatus of printing-machines; and it further relates to devices through which by the act of raising the said stand-tops the form-rollers are at the same time raised above the forms.

The object of the improvement is to provide greater facility and convenience for the lifting of the said stand-tops and rollers when necessary; and to this end the invention consists in the mechanism illustrated by the accompanying drawings and hereinafter described and claimed.

Figure 1 in the drawings represents a side view of the impression-cylinder and its inking apparatus and part of the framing of a printing-machine and of the lifting and locking devices for the ink-rollers, showing the several rollers in their operative positions. Fig. 2 is a plan of part of one of the side frames and the adjacent portions of the impression-cylinder and ink-rollers and of the lifting and locking devices on the corresponding side of the machine; Fig. 3, a transverse elevation corresponding with Fig. 2; Fig. 4, a side view showing the roller-stand tops and rollers all lifted.

A designates the main framing, containing the bearings for the journals of the impression-cylinder B. On each side of this framing is erected one of the stationary roller-stands C, on which are the bearings *a* for the form-rollers *b*. Above the said stands C the stand-tops D are directly hinged or pivoted at fixed points *c* to the main framing, the said stand-tops containing the bearings for distributing-rollers consisting of the vibrators *d* and top riders *e*. It will be understood that there is one of these stands C and tops D for each side of the machine, and therefore I have

only thought it necessary to represent those for one side.

To each of the stand-tops D there is rigidly attached a lever-arm *f*, on the end of which is a toothed sector *g*, which gears with one of the two lifting-pinions *h* on the lifting-shaft *i*, which extends across the machine and is supported in bearings in brackets *h'* on the side framing. This shaft *i* has fast to it a spur-gear *j*, gearing through an intermediate gear *k* with a pinion *l*, which is carried by a hand-wheel *l'*. This hand-wheel turns on a fixed stud *l''*, and the gear *k* turns freely on a fixed stud *k'*, said studs being secured in or on the framing. By turning or allowing the hand-wheel *l'* to turn in one direction or the other the stand-tops D are lifted to the position shown in Fig. 4 or allowed to drop to the position shown in Fig. 1, in which they rest on the stands C. To provide for locking the tops D down upon the stands, as shown in Fig. 1, there is provided on the gear *j* a short ratchet *j''*, which is engaged by a pawl *j'''*, pivoted to the framing A. The said gear *j* has provided upon it a laterally-projecting flange *j''''*, upon which the pawl *j'''* rests when not engaged with the ratchet-teeth *j''*. To provide for locking the tops D in the lifted positions shown in Fig. 4, there is a ratchet-wheel *m*, fast to the hand-wheel *l'* and pinion *l*, and a pawl *m'* is pivoted to the framing to engage with said ratchet-wheel.

On the inner face of each roller-stand there is set up edgewise under the journals *b'* of the corresponding ends of the form-rollers *b* a lifting-plate E for lifting said rollers above the level of the form. These lifting-plates are slotted, as shown at 6 in dotted lines in Figs. 1 and 4, to receive pins 7, which so attach them to the roller-stands as to permit them to move upward and downward thereon. The said lifting-plates are supported near each end on the lower parts of the stands by toggles *n*, and the toggles of each plate are connected at their joints by a rod *o*. The lower member of one of said toggles belonging to each lifting-plate is extended in the form of an elbow-lever, as shown at 8 in Figs. 1, 3, and 4, and the said lever is connected by a rod *p* with the stand-top D on



the correspondingside of the machine. When the stand-tops are down in their normal position, (shown in Fig. 1,) the toggles are so bent that they hold down the lifting-plates E in a position to allow the form-roller journals  $b'$  to run in their bearings  $a$ ; but when the stand-tops are lifted, as shown in Fig. 4, the flexure of the toggles is reduced by the action of the rods  $o$  and levers 8, and the lifting-plates E are caused to rise and lift the form-rollers  $b$  sufficient to clear the forms yet to leave their journals  $b'$  within their bearings, so that on the return of the stand-tops the rollers will drop to their normal positions.

While the printing-machine is in or in condition for operation the pawl  $m'$  may be thrown back, as shown in Fig. 1, leaving the ratchet-wheel  $m$  free, though the said pawl may remain in engagement with the said ratchet-wheel; but the stand-tops are locked down by the engagement of the pawl  $j^3$  with the ratchet-teeth  $j^2$ . When the stand-tops are to be lifted, the pawl  $m'$  must be in engagement, and the pawl  $j^3$  is thrown out of engagement by the attendant, who then turns the hand-wheel  $l'$  in the direction of the arrow shown near it in Fig. 1 until the ratchet-teeth  $j^2$  pass the said pawl, which may then be allowed to drop to the flange  $j^4$  of the wheel  $j$  and rest thereon while the attendant continues to turn the hand-wheel until the stand-tops are raised to the height desired, where they are locked by the pawl  $m'$ , as shown in Fig. 4. When the stand-tops are to be lowered to bring the rollers  $d$   $e$  to their operative position, the pawl  $m'$  is thrown out of engagement and the stand-tops and rollers will drop of their own weight, the said dropping being controlled so as to take place gently by the attendant, who exercises a slight holding-back action of the hand-wheel. The relocking of the stand-tops in the position last mentioned is effected by the arrival of the ratchet-teeth  $j^2$  in engagement with the pawl  $j$ . The lifting and lowering movement of the stand-tops will, as has been before explained, effect the simultaneous raising and lowering movements of the form-rollers.

What I claim as my invention is—

1. In the inking apparatus of a printing-machine, the combination with roller-stand tops and supports to which they are hinged, of toothed sector-carrying levers one on each stand-top, a lifting-shaft and bearings therefor, pinions on said shaft one for each sector-

carrying lever, and means for turning and locking said shaft, substantially as herein described.

2. In the inking apparatus of a printing-machine, the combination with roller-stand tops and supports to which they are hinged, of toothed sector-carrying levers one on each stand-top, a lifting-shaft and bearings therefor, pinions on said shaft one for each sector-carrying lever, a gear on said lifting-shaft, a hand-wheel and a pivotal support therefor, gearing between said hand-wheel and said gear on the lifting-shaft for lifting the stand-tops, a ratchet on said gear and a pawl engaging therewith for locking the stand-tops with their rollers in operative position, a ratchet-wheel carried by said hand-wheel, and a pawl engaging with the latter ratchet-wheel to lock the roller-stands in their lifted position, substantially as herein described.

3. In the inking apparatus of a printing-machine, the combination with fixed roller-stands and inking-rollers and bearings therefor in said stands, of roller-stand tops one for each side of the machine containing the bearings for ink-distributing rollers, fixed supports to which said stand-tops are directly pivoted at fixed points, lifting-plates applied within said stands under the journals at both ends of the form-rollers, and connections between each so-pivoted stand-top and the lifting-plate on the same side of the machine for operating said lifting-plates by the raising of the stand-tops, substantially as herein described.

4. In the inking apparatus of a printing-machine, the combination with roller-stands and inking-rollers and bearings therefor in said stands, of roller-stand tops containing ink-distributing rollers, fixed supports to which said stand-tops are directly pivoted at fixed points, lifting-plates applied within said roller-stands under the journals of the inking-rollers, toggles supporting said lifting-plates, means for raising said stand-tops on their hinges and connections between said so-pivoted stand-tops and toggles for operating said lifting-plates by the raising of the stand-tops, substantially as herein described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 28th day of October, A. D. 1901.

CHARLES P. COTTRELL.

Witnesses:

A. R. STILLMAN,  
ARTHUR M. COTTRELL.