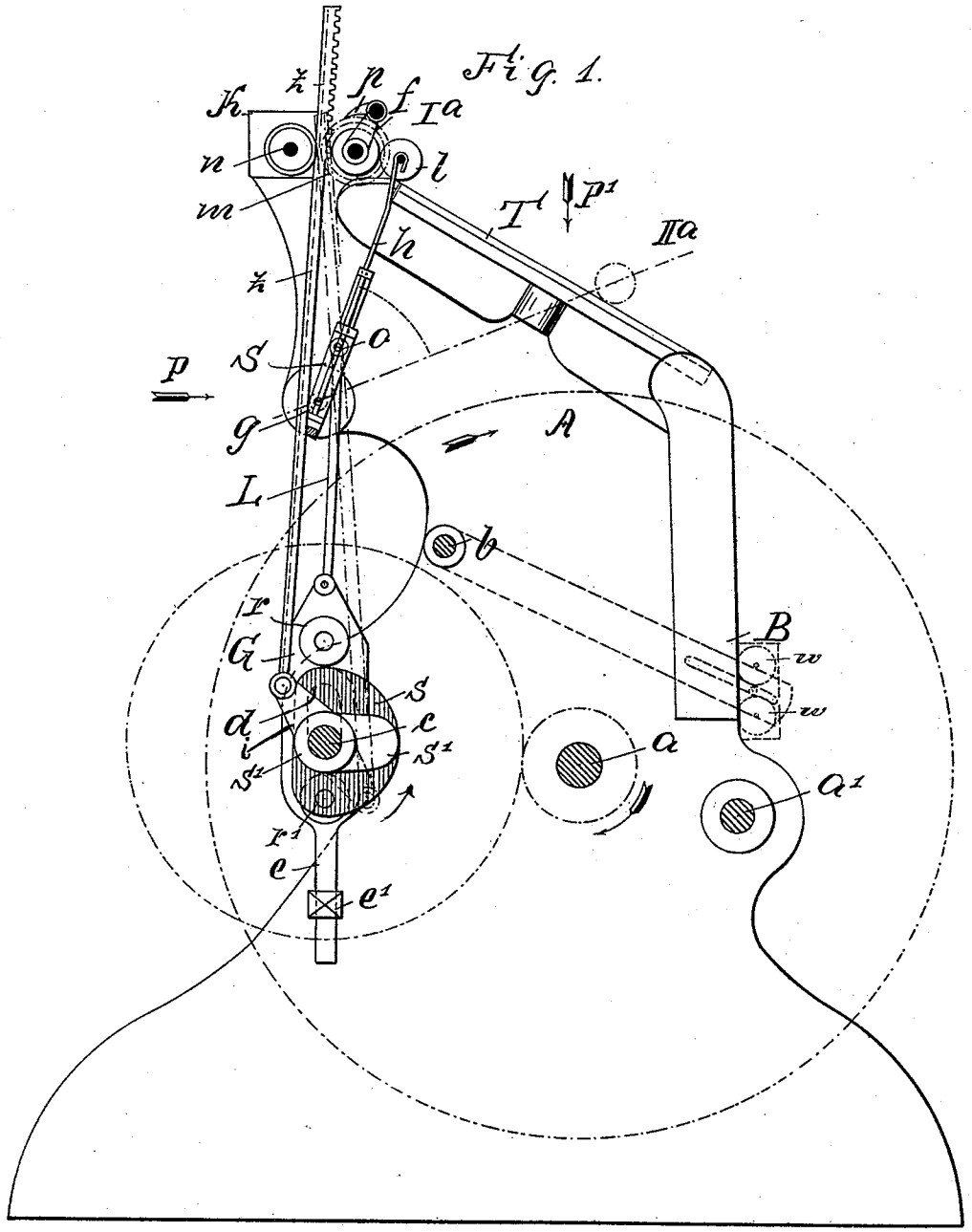
(No Model.) 2 Sheets—Sheet 1.

O. RIESE & H. POHL.

INKING DEVICE FOR PRINTING MACHINES.

No. 495,142. Patented Apr. 11, 1893.

Fig. 1.



Witnesses:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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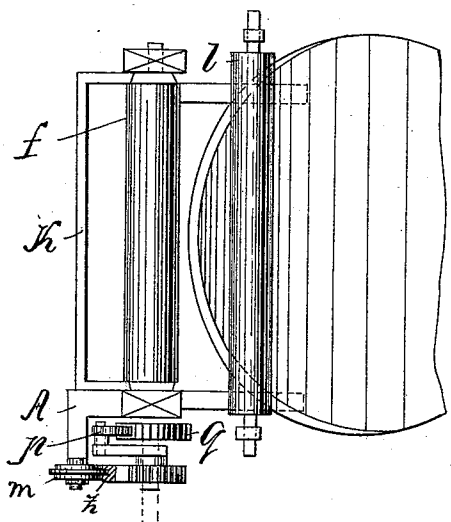
Fig. 3.



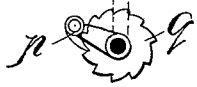


Fig. 4.

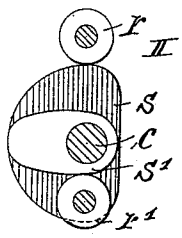


Fig. 5.

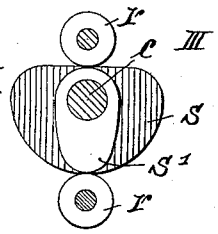
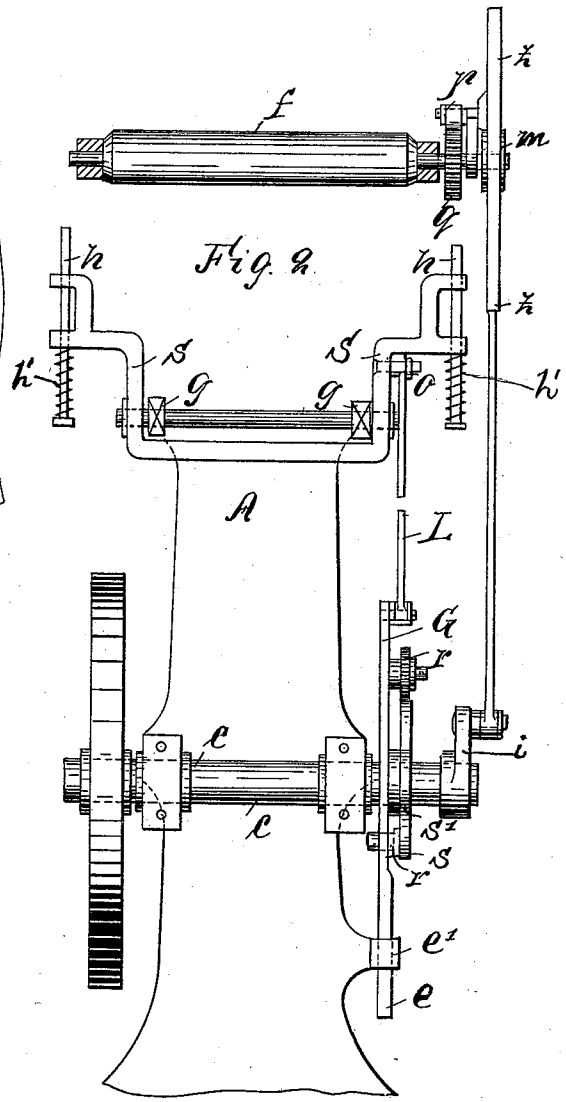


Fig. 2.



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UNITED STATES PATENT OFFICE.

OSKAR RIESE AND HERMANN POHL, OF BERLIN, GERMANY.

INKING DEVICE FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 495,142, dated April 11, 1893.

Application filed March 18, 1892. Serial No. 425,459. (No model.)

To all whom it may concern:

Be it known that we, OSKAR RIESE and HERMANN POHL, both subjects of the King of Prussia, German Emperor, and residents of Berlin, in the Kingdom of Prussia, German Empire, have invented a new and useful Inking Device for Printing-Machines, of which the following is a full and exact specification.

Our invention relates to printing-machines with oscillating platen, and consists in an inking-device in which the roller taking the ink from the fountain roller is given one complete revolution during the time it is in contact with the same, and in which the fountain roller remains at rest during the time the distributing roller is passing over the distributing-plate, from which the ink is taken to the types by means of inking-rollers.

The better to make our meaning clear, we will proceed to describe a machine fitted with our inking-device as represented on the accompanying drawings, on which

Figure 1 is a side elevation of the machine. Fig. 2 is a rear elevation of the same, in the direction of the arrow P in Fig. 1. Fig. 3 is an upper view of the same, in the direction of the arrow P′ in Fig. 1. Figs. 4 and 5 are details showing two different positions of the eccentric *s′* and cam disk *s*.

Similar letters refer to similar parts throughout the several views.

A is the frame of the machine, and *a* the driving shaft of the same, on which the fly-wheel is mounted.

a′ is the pivot on which the platen oscillates; the platen itself is not shown on the drawings, the bed is fixed to the frame at B. At the upper end of the bed B there is pivoted to the frame the distributing-plate T, and *b* is the axle to which are secured the arms carrying the inking-rollers, *w* which are guided over the distributing-plate T and the bed B. The construction of these arms and rollers does not differ from the usual ones.

Motion is transmitted from the driving-shaft *a* to the shaft *c* by means of toothed wheels gearing into another, as indicated by dotted lines in Fig. 1. On the shaft *c* there is a crank *i*, to the end of which is linked the connecting-rod *z* extending upward, the free end whereof is provided with teeth, thus forming a rack. These teeth engage with those of the ratchet-wheel *m*, loosely mounted on the axle of the fountain roller *f*, the bearings whereof are provided in the frame A of the machine. The feeding-cylinder *f* is placed in the usual manner before the ink-tank K fixed to the frame A.

To the ratchet-wheel *m* there is secured an arm carrying the pawl *p*, which is pressed into the indentations of another toothed wheel *q* firmly mounted on the axle of the fountain roller *f*, by means of a spring not shown on the drawings. It will be understood that when the connecting-rod *z* descends, it rotates the fountain roller *f*, as the pawl *p* engages with the toothed wheel *q*; but when the connecting-rod *z* moves upward, the pawl *p* glides over the teeth of the said wheel *q*, and the fountain roller *f* is not rotated. The upper end of connecting-rod *z* is also guided by means of a roll *n* pivoted to the frame A.

On the shaft *c* we also mount a cam-shaped disk *s* and at the side of the same an eccentric *s′* (Figs. 1 and 2). The disk *s* is of the form shown in Fig. 1, having a semi-circular portion. The cam-disk *s* is constantly in contact with an upper roll *r* and the eccentric *s′* with a similar lower one *r′*. Both rolls *r* and *r′* are secured to the slide G, which is guided on the shaft *c* by means of the slot *d* and in a guide *e′* on the frame A, by means of an extension *e*. The shape of the cam-disk *s* and eccentric *s′* is such that the rolls *r* and *r′* are always held exactly the same distance apart, and constantly rest on the said disk and eccentric, as already mentioned. To the upper end of the slide G there is linked the connecting-rod L, which is again linked at *o* to the swinging fork S, pivoted to the frame A at *g g*. To the ends of the fork S there are secured in the usual manner the rods *h*, fitted with springs *h′*, and receiving the axle of the distributing-roller *l* in hooks provided at their free ends.

The operation of our improved inking-device is as follows: In Fig. 1 the distributing-roller *l* has just reached its highest position, the shaft *c* revolving in the direction of the arrow, and said roller *l* is thereby pressed against the fountain roller *f*. It will be seen that the latter is already in rotation when the distributing-roller is applied to the same, as the crank *i* and connecting-rod *z* have already

begun their downward course. The roll *r* now glides over the semi-circular portion of the cam-disk *s* during half a revolution of shaft *c*, and the distributing-roller *l* remains pressed against the fountain roller *f* all this time, until the position II illustrated by the diagram Fig. 4 is reached. The distributing-roller *l* is during this whole period rotated together with the fountain roller *f*, and the teeth of the ratchet wheel *m* and the connecting-rod *z* are arranged in such manner, that the fountain roller *f* performs a complete revolution during the mentioned period. Before the rotation of the said fountain roller *f* is stopped, (when the connecting-rod *z* begins its upward course,) the eccentric *s'* depresses the lower roll *r'* and thus moves the distributing-roller *l* off the fountain roller *f*, and gradually brings the same into the position shown on Fig. 1 in dotted lines, when the eccentric *s'*, cam-disk *s*, rolls *r* and *r'* and shaft *c* occupy the position III illustrated by the diagram Fig. 5. During this movement the ink is distributed from the distributing-roller *l* on the distributing-plate T. We have adopted this manner of moving the distributing-roller *l* off the fountain roller *f* before the rotation of the latter is stopped, in order to secure a completely uniform distribution of the ink on the distributing-roller *l*, which would be impossible otherwise. If the distributing roller is allowed to remain in contact with the fountain-roller till the rotation of the latter has stopped, and is only then removed out of contact with the same, the ink, instead of being uniformly distributed on the surface of the distributing roller, will collect at the place of contact when the rollers have ceased to rotate, and thus there will arise an accumulation of ink along the said line of contact. The shaft *c* continuing its rotation, the position Fig. 1 is soon reached again, and then the movements repeat as described.

It will be understood that the movements of the distributing-plate T and of the inking-rollers *w* are such as not to interfere with that of the described mechanism. The cam-disk *s* and eccentric *s'* may also be replaced by grooves shaped accordingly, in which the rolls *r* and *r'* would be guided.

Having thus fully described the nature of our invention, what we desire to secure by Letters Patent of the United States is—

1. In an inking device for printing machines, the combination, with the fountain and distributing roller, of means for periodically effecting a complete rotation of the fountain roller, and means for bringing the distributing roller against the fountain-roller after the rotation of the latter has begun, and removing it from the fountain roller before the rotation of the latter is stopped, for the purpose set forth.

2. An inking device for printing machines, consisting essentially in the combination, with a rotatable shaft, of a reciprocating rack and means for operating the same from said shaft, a fountain roller and means for effecting a complete rotation of the same at each downward movement of the reciprocating rack, a reciprocating distributing roller and means for pressing the same against the fountain-roller after the rotation of the latter has begun, and removing it from the fountain-roller before the rotation of the latter is stopped, and an ink distributing plate to receive the ink from the distributing roller, substantially as and for the purpose described.

3. An inking device for printing machines, consisting essentially in the combination, with the rotatable shaft *c*, of the crank *i*, the reciprocating connecting-rod *z* provided with teeth at its upper end, the fountain roller *f*, the ratchet-wheel *m* loosely mounted on the axle of the same and engaging with the teeth of the connecting rod *z*, the pawl *p* rigidly connected to said ratchet-wheel *m*, the toothed wheel *q*, keyed to the axle of the fountain roller *f* and adapted to be rotated through a complete circle by the pawl *p* at each downward movement of the connecting-rod *z*, the cam-disk *s*, eccentric *s'*, rolls *r* and *r'*, slide G having slot *d* and extension *e*, guide *e'* for the same, connecting-rod L, swinging fork S, rods *h*, the reciprocating distributing roller *l* and distributing plate T; the movements of the different parts being timed in such a manner as to press the distributing roller *l* against the fountain roller *f* after the rotation of the latter has begun, and to remove it from the said fountain roller *f* before the rotation of the latter is stopped, all substantially as described, and for the purpose specified.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

OSKAR RIESE.
HERMANN POHL.

Witnesses:
FR. SPOOBINOJ,
R. HERPICH.