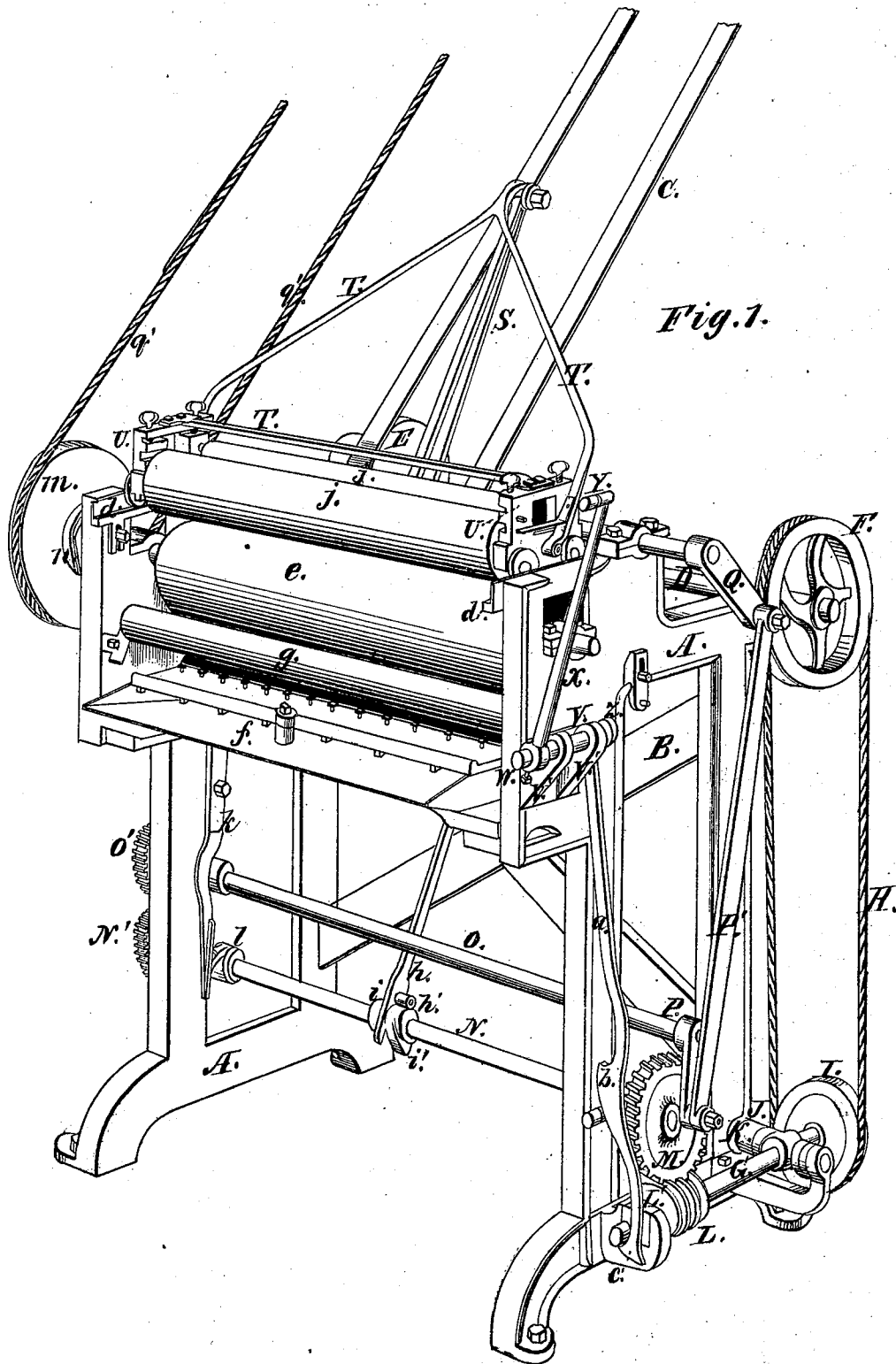


R. M. Hoe Sheet 1. 2. Sheets

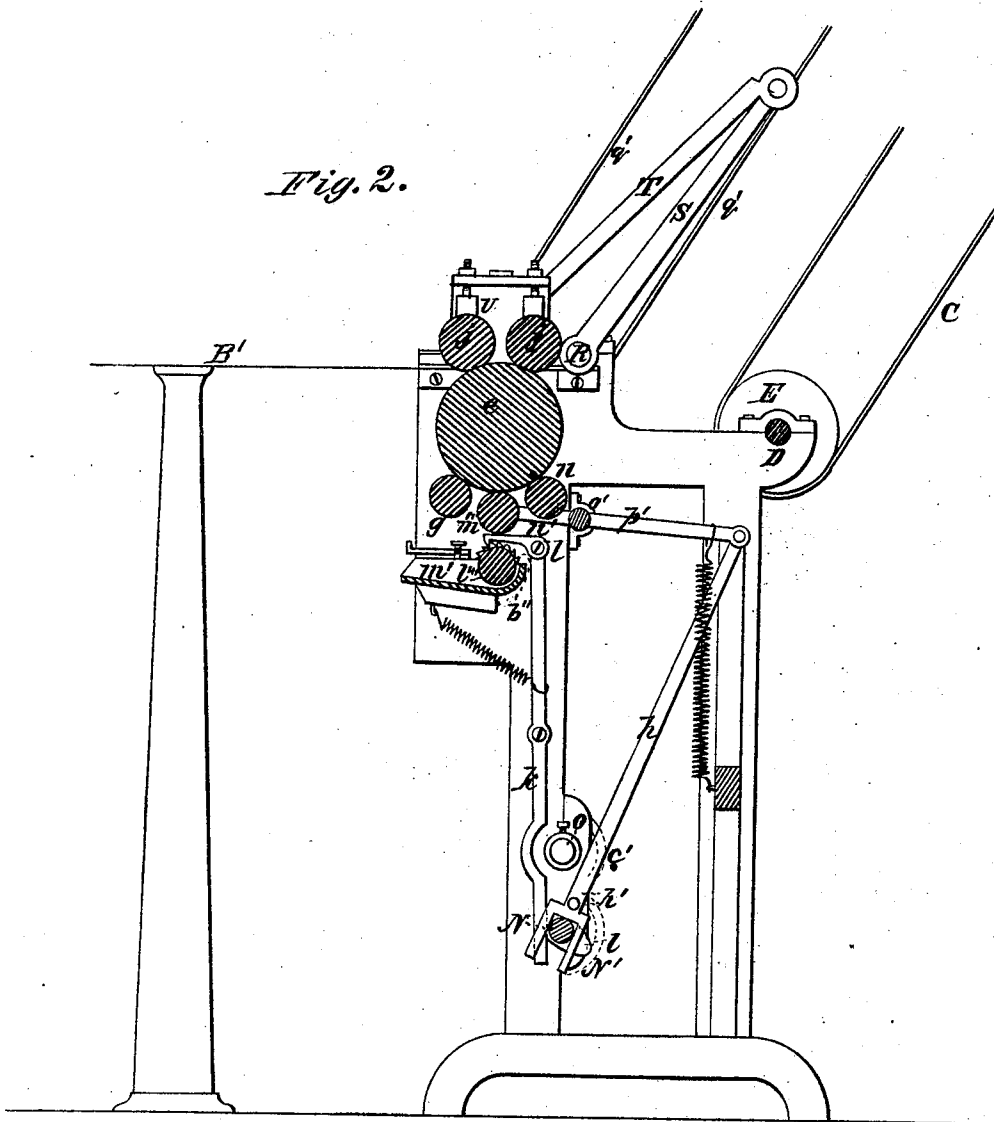
Inking Apparatus for Printing Press.
N^o 5212. Patented Jul. 31. 1847.



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Fig. 2.



UNITED STATES PATENT OFFICE.

RICHARD M. HOE, OF NEW YORK, N. Y.

INKING APPARATUS FOR PRINTING-PRESSES.

Specification of Letters Patent No. 5,212, dated July 31, 1847.

To all whom it may concern:

Be it known that I, RICHARD M. HOE, of the city, county, and State of New York, have invented a new and useful Power Inking Apparatus for Hand-Presses, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective representation of the inking apparatus, and Fig. 2 a cross vertical section thereof.

The same letters indicate like parts in all the figures.

The object of my invention is to provide hand presses with an inking apparatus operated by power, to insure the proper inking of the form of types, and to save the hand labor heretofore employed for this purpose. The inking apparatus is placed by the side of the bed frame of the press so that when the bed with the form of types on it is carried out from under the platen it will be so situated that the inking rollers shall pass from the distributing rollers over it and back again, one or more times, as may be desired. And the nature of my invention consists in giving the requisite reciprocating motion to the carriage of inking rollers by means of an arm on a vibrating shaft or arbor connected with the roller carriage by a jointed forked link or bail, the shaft of the lever being provided with a crank arm connected by a joint link with a rotating crank of less length on a shaft below, which receives its motion from another and parallel shaft by two cog wheels that may be shifted to vary the relative motions of the two shafts, when it is desired that the inking rollers shall pass a greater number of times over the form of types for each impression, according to the quantity of work desired to be produced, the latter of these shafts being actuated by a worm that rotates continuously by its connection with the main or driving shaft of the mechanism, and which to intermit the motions, can be thrown in and out of gear by having one end of its shaft working in a swivel box and the other in a sliding box, so that by means of a catch link, it can be thrown into gear when the form of types is carried out to be inked, and thrown out by a cam at the end of the ink-

ing operation. And my invention consists also in providing the shaft of the worm wheel with a cam to vibrate a lever provided with a hand catch, to turn the ductor roller the required distance at each operation, to carry up the requisite quantity of ink, and another cam, which by means of a jointed link and lever depresses the taking roller to receive its supply of ink from the ductor roller, and then carries it up to transfer its supply of ink to the distributing roller.

In the accompanying drawings (A A) represent the two side frames connected and bound together by cross pieces and diagonal braces (B, B, B) to give the requisite strength. This frame is placed by the side of the bed frame (B') of a hand press so that when the carriage with its form of types is run out from under the platen of the press, it shall be in the proper position to permit the inking rollers to pass over and ink the types. It is not deemed necessary to represent the press and carriage with its form of types as these are well known, and therefore a part of the bed frame alone is represented in the section Fig. 2 with a line B' to represent the plane of the form of types.

Motion is communicated from some first mover to this inking apparatus by a belt (C) that runs onto a pulley (E) on one end of the main driving shaft (D) provided with another pulley (F) on the other end which, by a band (H) running onto a pulley (I) on a shaft (G), drives a worm (L) on the other end of this same shaft. One journal of this shaft (G) runs in a box made in a short arbor (K) that has its bearings in one of the side frames (A) and a bracket frame (J) so that its other journal, which runs in a sliding box (L'), may vibrate up and down to admit of throwing the worm in and out of the cogs of a worm wheel (M); on the end of a horizontal shaft (N) placed parallel with the main driving shaft and at right angles to the worm shaft (G). And the shaft (N) communicates motion to another shaft (O) parallel with it, by means of two spur wheels (N', O') the shaft (O) being provided with a crank arm (P), connected by means of a rod (P') with another crank arm (Q) of greater length on a shaft (R) at the upper part of the frame; and as this crank arm is of greater radius than the one on the shaft (O) it can only receive a vibratory motion from the rotation of the other and shorter one.

On the vibrating shaft (R) there is an arm (S), the outer end of which is connected with the carriage (U) of the inking rollers (*j, j*) by a forked link or bail (T) by means of which connection the vibration of the shaft (R) carries the inking rollers over the form of types and back again to the distributing roller (*e*) of the inking apparatus, to receive a supply of ink for the next operation. The worm is kept out of gear by its weight and the tension of the belt (H) so that its rotation does not communicate motion to the worm wheel (M) and the parts in connection with it,—but when the carriage of the printing press, which carries the form of types, is run out and the tympan frame is thrown up, a projection of any kind thereon strikes the end (Y) of an arm (X), attached at (W) to one end of a short rock shaft (V) that has its bearings in brackets (V', V'), and moves it from the frame, which motion draws up a catch link (*a*) connected with the vibrating shaft (V) by an arm (Z), and this link having a hook (*c*) at its lower end, which passes under the end of the shaft (G), lifts it up which engages the threads of the worm with the cogs of the worm wheel (M), and this sets in motion the mechanism above described to carry the inking rollers (*j, j*) over the form of types and back again to rest on, and receive a fresh supply of ink for the next operation. At the end of this operation an arm (*o*) on the shaft (N), placed just back of the worm wheel (M), strikes a projection (*b*) on the catch link (*a*), and throws its hook (*c*) from under the shaft (G) which permits it to descend and disengage the threads of the worm (L) from the cogs of the worm wheel (M) and thus arrests the motions of the parts in connection with the inking rollers.

The wheels (N') and (O'), on the two shafts (N, O), are of equal diameter so that these two shafts turn with equal velocities, but by taking off these two wheels and substituting two others in their places of different sizes, say, the one on the shaft (O) of half the diameter of the one on the shaft (N), the shaft (O) will make two revolutions to one of the other which will carry the inking rollers twice back and forth over the form of types for each complete operation of the inking apparatus. In this way the types can be inked more or less at pleasure, according as the relative proportions of the two wheels are varied.

On the shaft (N) there is a cam (*l*) which acts on a lever (*k*) provided at the upper end with a catch or hand (*l'*) that takes

into the teeth of a ratchet wheel (*l''*) on the end of the ductor or fountain roller (*l'''*) to turn it a part of a revolution at each operation of the machine to carry up ink from the fountain (*m'*) to the taking roller (*m''*). This roller (*m''*) has its bearings in arms (*n', n'*) (one only seen in the drawings) of a rock shaft (*o'*) which has another arm (*p'*) to which is jointed a connecting rod (*h*) forked at the lower end to embrace the shaft (N) and slide up and down thereon between a collar (*i*) and a cam (*i'*), which, by the rotation of the said shaft (N) acts on a roller (*h'*) on the rod and lifts it up to depress the taking roller (*m''*) onto the periphery of the ductor roller to take from its surface the supply of ink, and then the rotation of the cam permits the rod to descend to elevate the taking roller up to the distributing roller (*e*) that by its rotation,—which is given by a belt (*q'*) from some first mover—receives the ink from the taking roller and transfers it to the inking rollers (*j, j*) and distributes it regularly on their surface by an endwise vibration produced by a double worm (*n*) on its shaft, in the usual manner adopted in inking apparatus.

It will be obvious from the foregoing that instead of the worm for communicating motion to the carriage of the inking rollers a train of cog wheels may be substituted; but the worm attains the object in a more simple and effective manner and hence I have given it the preference.

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

1. The mechanism for communicating motion to the carriage of inking rollers, or the mechanical equivalents therefor, in combination with the catch link and tilting shaft by means of which the parts are thrown in and out of gear to operate and stop the inking rollers, substantially as described.

2. I claim transferring the motions from the shaft of the worm wheel to the rocking shaft, the arm of which is in connection with the carriage of the inking rollers, by an intermediate shaft, the motion being transmitted from one to the other by two spur wheels which may be changed to carry the inking rollers over the form of types a greater or less number of times for each impression, substantially as described.

RICHD. M. HOE.

Witnesses:

C. W. M. KELLER,
JAMES MACGREGOR, Sr.