C. W. Haukes,

Oscillating Printing Press,

No. 7,413. Patented June 4, 1850.

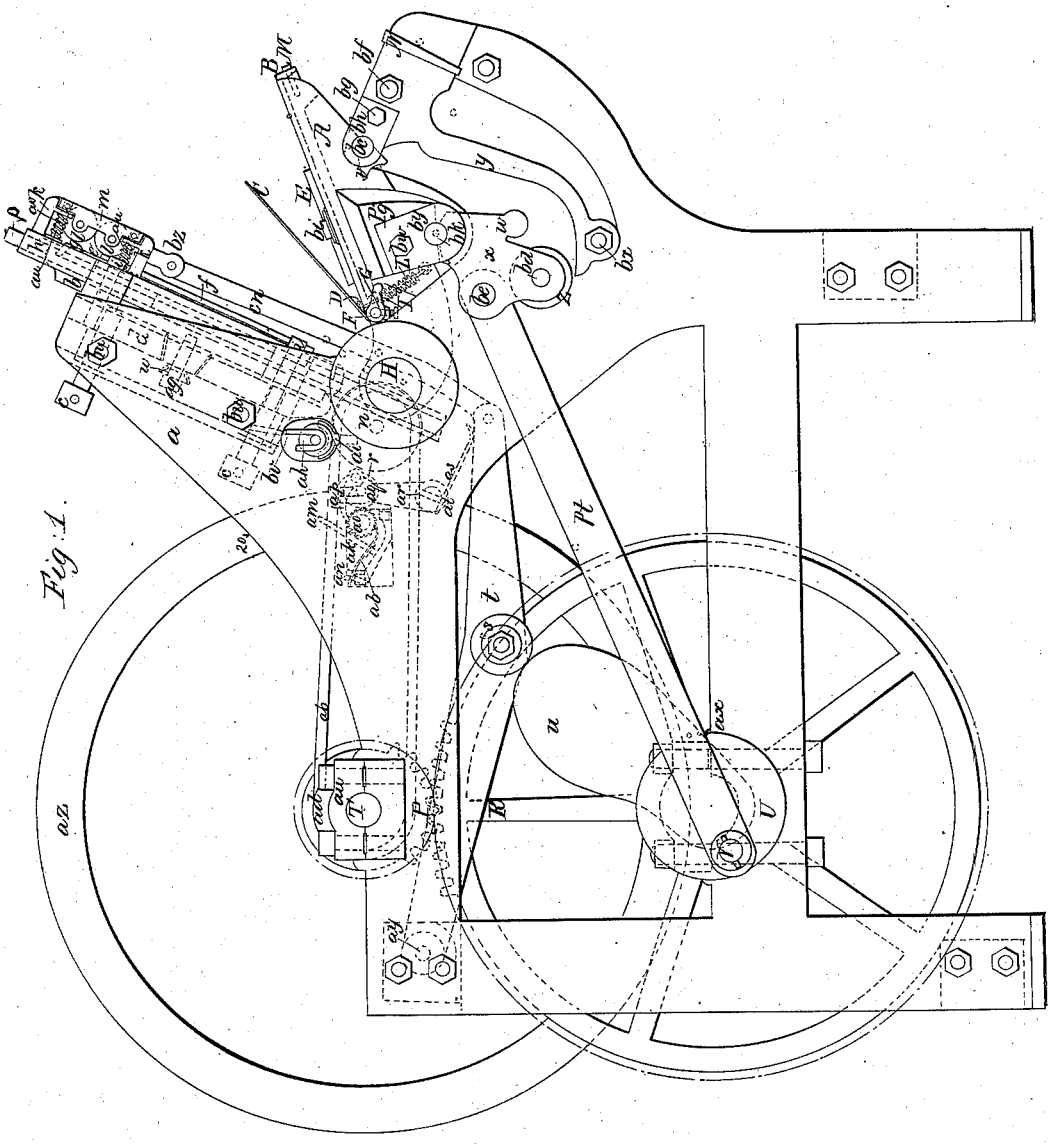

Fig. 1.

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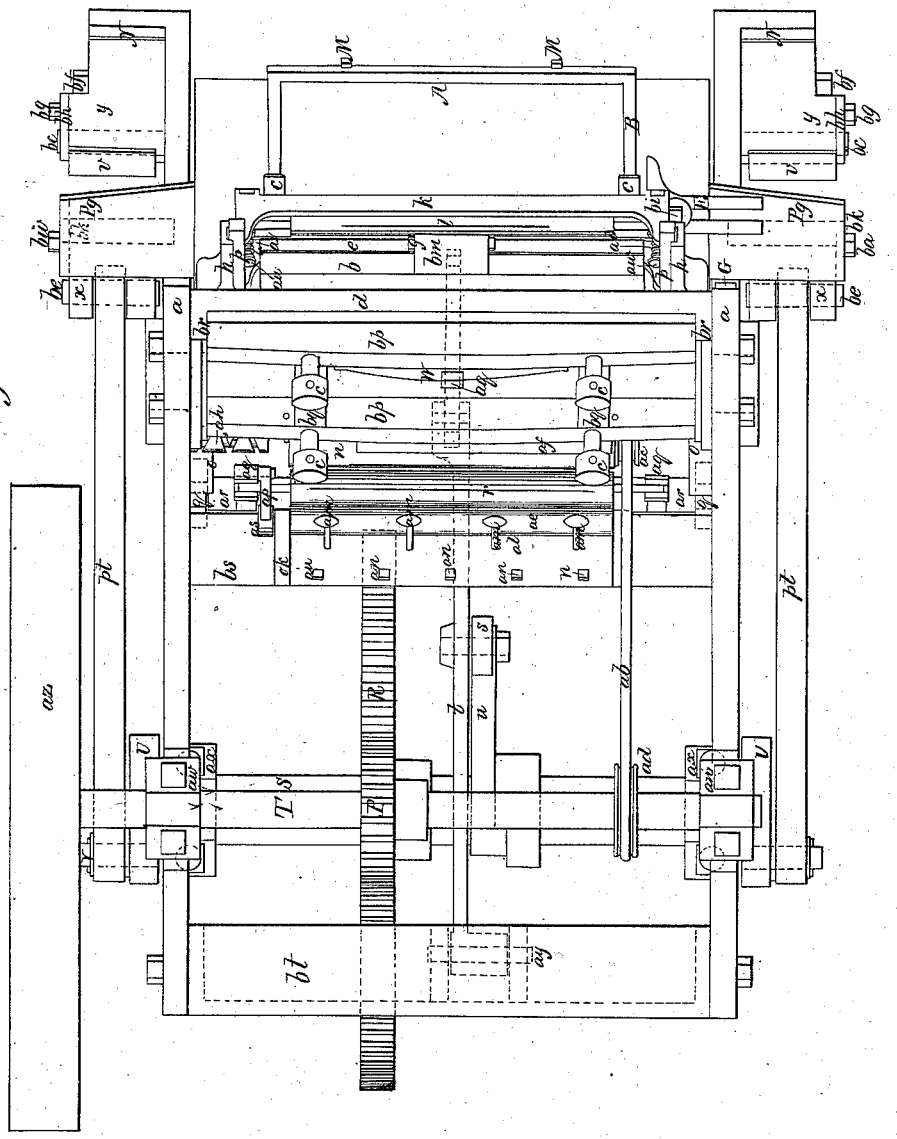
Fig. 2.



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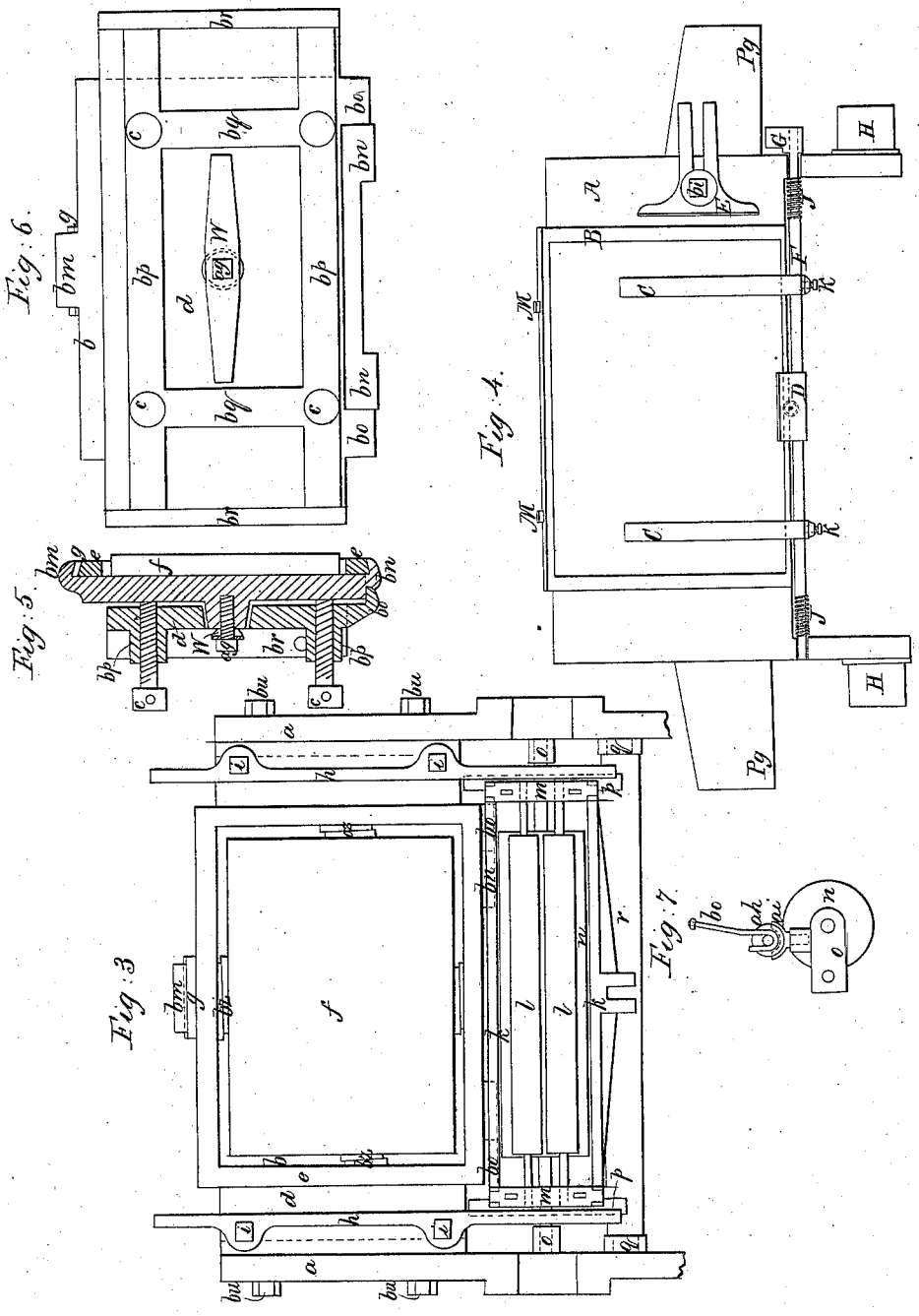

UNITED STATES PATENT OFFICE.

CHAS. W. HAWKES, OF BOSTON, MASSACHUSETTS.

PRINTING-PRESS.

Specification of Letters Patent No. 7,413, dated June 4, 1850.

To all whom it may concern:

Be it known that I, CHARLES W. HAWKES, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in a Printing-Press; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a side elevation. Fig. 2 is a plan, Fig. 3 is a front view or plan of the bed on which the type or form is secured, likewise representing the carriage containing the inking rollers in its lowest position or the position it is in when the impression is given, Fig. 4 is a plan of the platen on which the paper is laid to be printed, Fig. 5 is a transverse section of the bed and back-bar, Fig. 6 is a back view of the back-bar and bed, Fig. 7 is an end view of the traverse roll and inking drum.

The same leters refer to like parts in all the figures.

My improvements are applicable to printing any size of sheets large or small but more particularly for small job work.

To construct this machine a substantial frame *a*, *a*, is formed of a suitable capacity to contain the machinery as seen in Figs. 1 and 2. At the upper part of this frame and near the back end is the driving shaft T, extending across the frame and fitted to run in the boxes *a w*. Near the center of this shaft there is a pinion P, and a short distance from the end is a pulley *a d*, and on one end of said shaft and outside of the frame is a large driving pulley *a z*, sufficiently heavy to serve as a balance wheel on which a belt is made to run to give motion to the machine. Directly under the driving shaft is the main shaft S, fitted to run in the boxes *a x*, and a gear wheel fixed thereon to mesh into the pinion P: near the center of the last mentioned shaft is a cam *u*, and outside of the frame and on each end of the shaft is a face plate U, with a crank pin V, in each. In the top girt *b t*, is a lever *t* hung by the pin *a y*, and near the center of said lever is a roller *s*, which travels on the top of the cam *u*, thereby throwing the lever up and down at every revolution of the shaft. At the upper extremity of the frame is a back-bar *d*, secured firmly to the frame by the bolts *b u*, passing through the frame and into the projecting ends *b r*, of the back-bar: said bar inclines forward about 25 deg.

In Figs. 5 and 6 at the lower extremity of the back-bar near each end is a projection *b o*, near the upper and lower edges of said bar is a rib *b p*, running lengthwise of the bar, and near each end is a rib *b q*, extending crosswise and intersecting with the ribs *b p*, as seen in Figs. 2 and 6. There are four set screws *c*, for the purpose of leveling the bed one at each intersection of the ribs tapped into and passing through the back-bar as seen in Fig. 5. Directly in front of the back-bar is the bed *b* with its lower edge resting on the projection *b o*, of the back-bar and held firmly against the set screws *c*, by means of a spring W with each end bearing against the back side of the back-bar and a bolt *a g*, passing through its center and taped into the bed. At the lower extremity of the bed near each end is a projection *b n*, forming an acute angle with the bed and a similar one *b m*, at the top.

In Figs. 1, 2, 3 and 5 there is a chase *e* in front of the bed with its lower edge fitted to the angle of the projection *b n*, as seen in Fig. 5 and the upper edge of said chase is fitted to the angle of the projection *b m*, but leaving a space sufficient to receive the key *g*, which secures it firmly to the bed. Inside of the chase is the type or form *f*, secured firmly in its position by the keys *b z* as seen in Fig. 3.

In Figs. 1, 2 and 3 at each end of the bed and inside of the frame is a guide *h*, secured to the back-bar by the bolts *i* and on the inside of said guide toward the bed is a groove *c d*, Fig. 2 running the whole length of the guide. In Figs. 1, 2 and 3, there is a carriage *k*, *k*, with slides *p*, *p*, projecting at each end and fitted to run up and down in the grooves *c d*. At each end of the carriage there is a roller beam *m*, resting on the interior projections *x* and in said beam there are two inking rollers *l*, *l*, inserted: at each end of the roller beam there is a stud *a u*, fixed extending through the projections *x* with a head on the back end, and around said stud is a spiral spring *a v*, pressing against the head of the stud and the projection *x* thereby holding the roller beam lightly against the projections *x*. The use of the spiral springs attached to the roller beam is to give the rollers a chance to fall

back as they pass over the type and likewise to give the rollers the required pressure against the type while inking. Below the bed is an inking drum *n*, with journals fitted to run in the boxes *o*, *o*, Figs. 2, 3 and 7: on one end of the drum is a pulley *a c*, and around said pulley is a belt *a b*, extending to, and around the pulley *a d*, to give motion to the inking drum.

In Figs. 2 and 7 there is a distributing roller *a f*, lying on the inking drum and turning with it which traverses a short distance lengthwise to distribute the ink over the drum and held in its position by the hooks *b v*. On one end of the shaft of the distributing roller is a roller *a h*, with a spiral groove *s*, *g*, (Fig. 2) cut in it and extending about twice around it, then turning and running back in an opposite direction crossing its former track at every half circle until it arrives to the first starting point. In Fig. 7 directly under the roll *a h* is a dog *a i*, fitted to play loosely in the groove *s g*, said dog is set in a boss fixed on the box *o*, and made to turn according to the direction of the groove in which it runs thereby causing the distributing roller to traverse back and forth lengthwise of the drum.

Back of the inking drum, is a fountain *a*, *k*, containing the ink secured to the girt *b s*, Figs. 1 and 2 in the fountain there is a roll *a e*, with a ratchet wheel *a o* attached to one end outside of the fountain. There is a plate *a l* in a curvilineal form secured to the fountain by the bolts *a n*, the lower edge of said plate turns up against the fountain roll to prevent the ink from running out and is held firmly in that position by the set screws *a m*. Between the fountain roll and inking drum is a vibrating roll *r* hung in the top of the rocker arms *a q*, below the vibrating roll is a rocker shaft *a r*, to which the rocker arms are attached; said rocker shaft is hung in the boxes *q* as seen in Fig. 2. There is a pawl *a p* attached to the head of one of the rocker arms operating on the ratchet wheel.

In Fig. 1, will be seen a spring *a s*, bolted to the rocker shaft with a bolt *a t*, directly over the lever *t*, and every time said lever comes up it strikes the spring *a s*, and turns the rocker shaft *a r*, together with the arms *a q* thereby throwing the vibrating roll *r*, against the fountain roll *a e*, at the same time the pawl *a p*, turns the ratchet wheel *a o*, together with the fountain roll and delivers a quantity of ink to the vibrating roll; and when the lever *t* drops the vibrating roll falls back and delivers the ink to the drum where it is distributed over the drum by the distributing roller. The lever *t* is connected to the carriage *k* by the connecting rod *c n*, which is secured to the carriage at *b r*, thereby causing the carriage to travel up and down as the lever is made to rise and fall.

In Figs. 1, 2 and 4, (A) represents the platen; there are two grooves cut across the platen and a frame B inserted to hold the cloth or apron on which the paper is laid to be printed and secured firmly to the platen by the bolts M. At the lower edge of the platen is a rod F fitted to turn on its journals at *s t*, Fig. 4; on the middle of said rod is a gage D to lay the paper against with a spiral spring L, (Fig. 1) attached to it to hold it down on the platen; at one end of the platen is another gage E to lay the paper against and secured to the platen by the bolt *b i*. There are two springs C, C, fitted to slide on the rod F and secured by the set screws K, K; at each end of said rod is a spiral spring J which hold the springs *c*, firmly to the platen. On one end of said rod extending outside the platen is a trip G, (Figs. 1 and 4) which when the platen comes down strikes the stud I, and holds the springs C up from the platen sufficiently high to give a chance to lay on the paper, when the platen is again raised to the springs *c*, *c*, they hold the paper firmly to the platen while it is carried to the type to receive the impression. At the lower part of the platen at each side is a journal H fitted to turn in the frame as seen in Fig. 1. There is a projection P *g*, at each end of the platen (Figs. 1, 2 and 4) extending out by the frame; at each projection P *g*, and outside of the frame is hung a toggle lever *x*, turning on the journal *b k*, and secured in its position by the cap *b y*, and bolt *b w*. In Fig. 1 at the lower end of the toggle lever is a roller *r l*, turning on the pin *b d*. There is a pitman *p t*, on each side of the frame one end of which is connected to the toggle lever by the pin *b e*, the other end is fitted to receive the crank pin V. On the back side of the toggle lever opposite the pitman is a part acting as a toggle marked *w*. There is a stationary cam *y*, on each side secured firmly to the outside of the frame by the bolts *b x*, and *b f*, said cam is shaped to suit the required motion of the platen and made adjustable by the key N. At the top of the cam is a part of the toggle *v*, made to turn on the journals *b c* and secured in its position by the cap *b h* and bolt *b g*, the part of the toggle *v* is fitted to receive the part marked *w* on the toggle lever.

When this machine is set in motion the cam *u* first raises the lever *t* together with the carriage *k*, *k*, forcing the inking rollers up to deposit a quantity of ink on the type; the carriage then returns carrying the inking rollers down to the inking drum where they remain rolling upon the drum to receive the ink while the impression is given; then as the crank pin V, is attached to one end of the pitman *p t*, and the other end of

said pitman being attached to the toggle lever x the roller r l is made to roll up on the stationary cam y, thereby swinging the platen up against the type. Just before the impression is given the part of the toggle lever marked w enters the part of the toggle marked v (at the upper end of the stationary cam), thereby forming a regular toggle as the impression is given and relieving the roller r l, from a great pressure. As the motion is continued the roller r l is made to roll down upon the stationary cam causing the toggle w and v to separate and the platen to swing back. When the platen is swung down at an angle of about forty-five degrees from the bed it stops in that position and the toggle lever x swings away from the stationary cam causing the platen to remain still a sufficient time for the inking rollers to go up and ink the type and at the same time giving an opportunity to lay on the paper to be printed. In a small press the toggle lever x and stationary cam y can be used without the toggle w and v, but in large presses where a great pressure is required it would be necessary to introduce the toggle for the roller r l would be likely to crumble under a great pressure.

Having thus fully described my printing press what I claim as my invention and desire to secure by Letters Patent is—

1. The application of the toggle lever x working on the stationary cam y to raise the platen in the manner and for the purpose herein described.

2. I claim the combination of the toggle lever x and toggle w and v with the stationary cam y substantially in the manner and for the purpose herein set forth.

3. I claim the combination of the toggle lever x and toggle w and v, with the swing platen as herein set forth.

4. I claim the combination of the spiral springs J, and the trip G, when used in combination with the swing platen substantially in the manner and for the purpose herein described.

CHARLES W. HAWKES.

Witnesses:
EDW. HOWARD,
JAMES M. KEITH.