

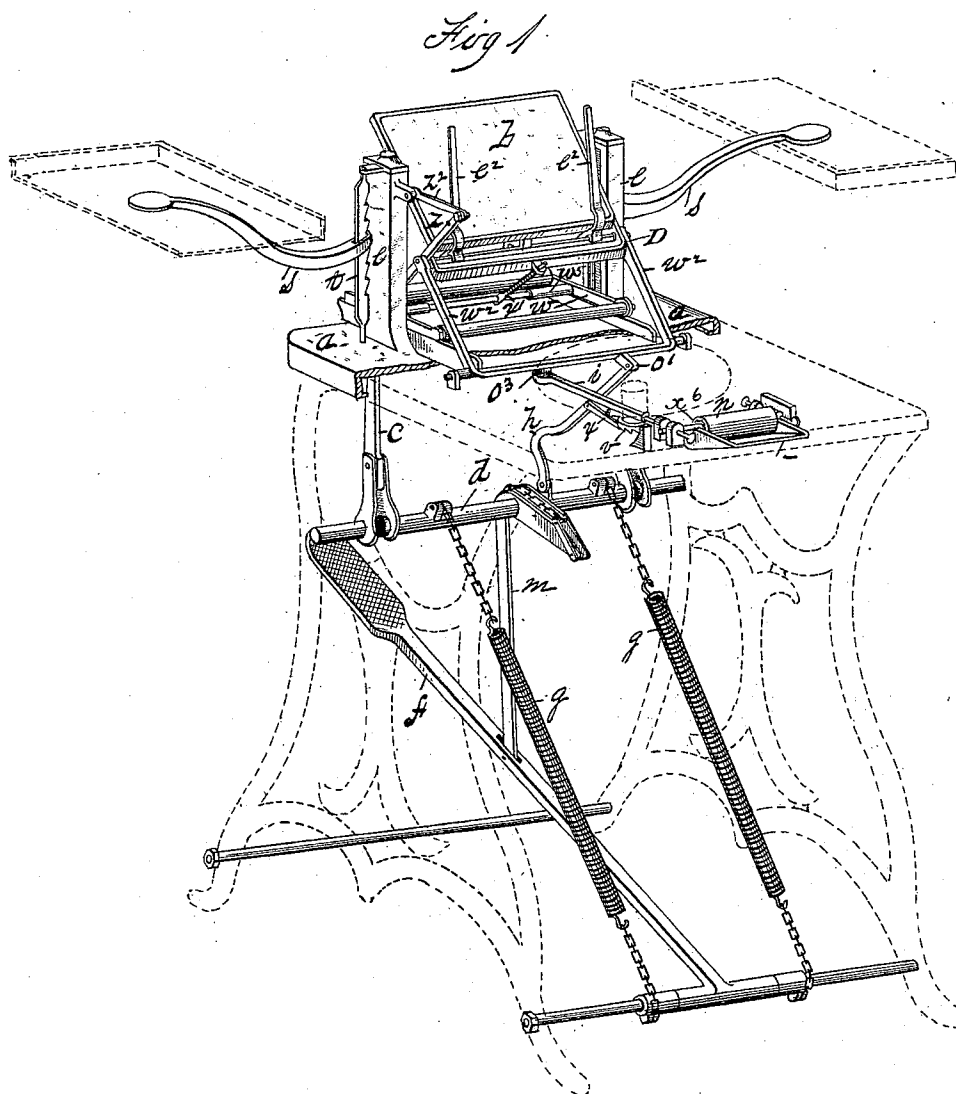
(No Model.)

4 Sheets—Sheet 1.

F. H. RICHARDS.  
OSCILLATING PRINTING PRESS.

No. 300,897.

Patented June 24, 1884.



Witnesses;

Walter Fowler,  
R. E. Hyde.

Inventor;

Francis H. Richards  
By Henry A. Chapin  
att'y

(No Model.)

4 Sheets—Sheet 2.

F. H. RICHARDS.

OSCILLATING PRINTING PRESS.

No. 300,897.

Patented June 24, 1884.

*Fig. 2*

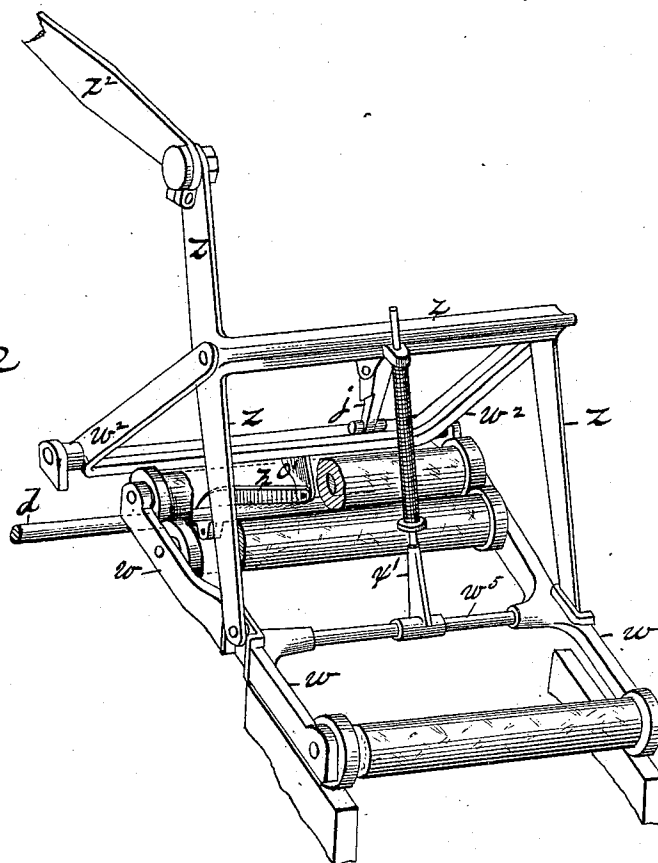
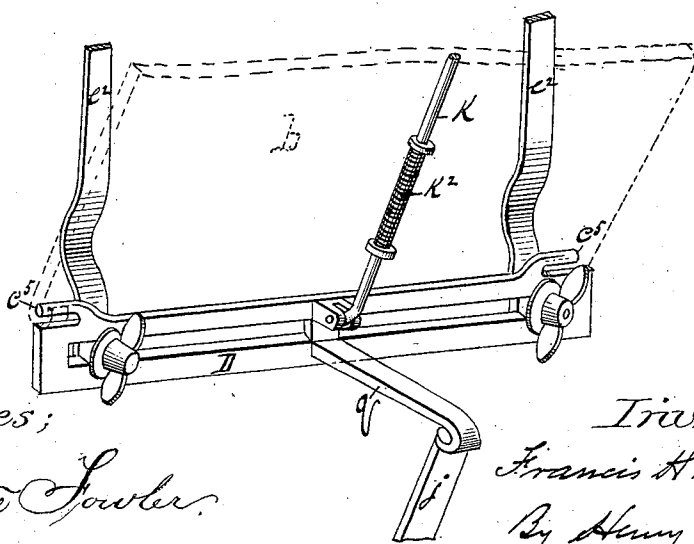


*Fig 3*



Witnesses;

*Shaver Fowler.*  
*R. F. Hyle*

Inventor;

*Francis H Richards*  
*By Henry A. Chopin*  
*Atty*

(No Model.)

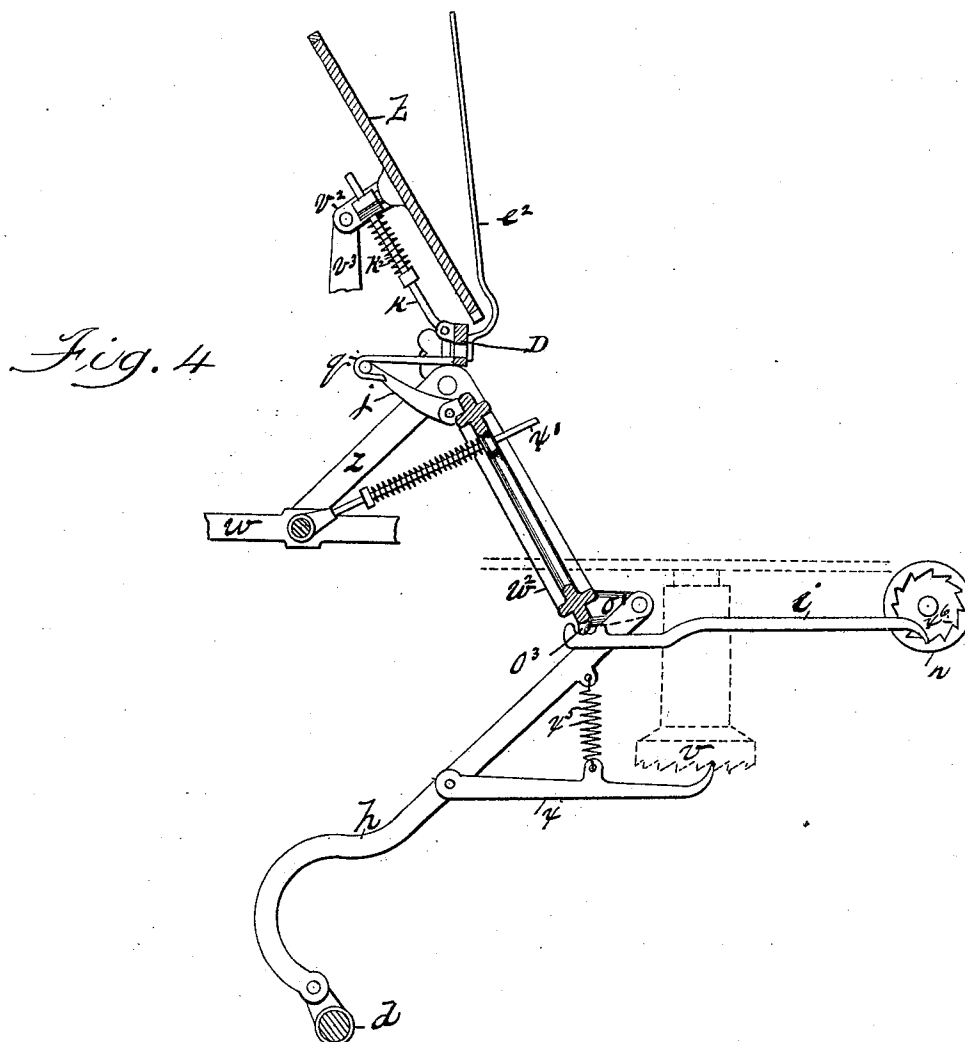
4 Sheets—Sheet 3.

F. H. RICHARDS.

## OSCILLATING PRINTING PRESS.

No. 300,897

Patented June 24, 1884.



Witnesses;

Walter Fowler  
R. F. Hyde

*Inventor ;*

Francis A. Richards  
By Henry A. Chapin  
Atty

(No Model.)

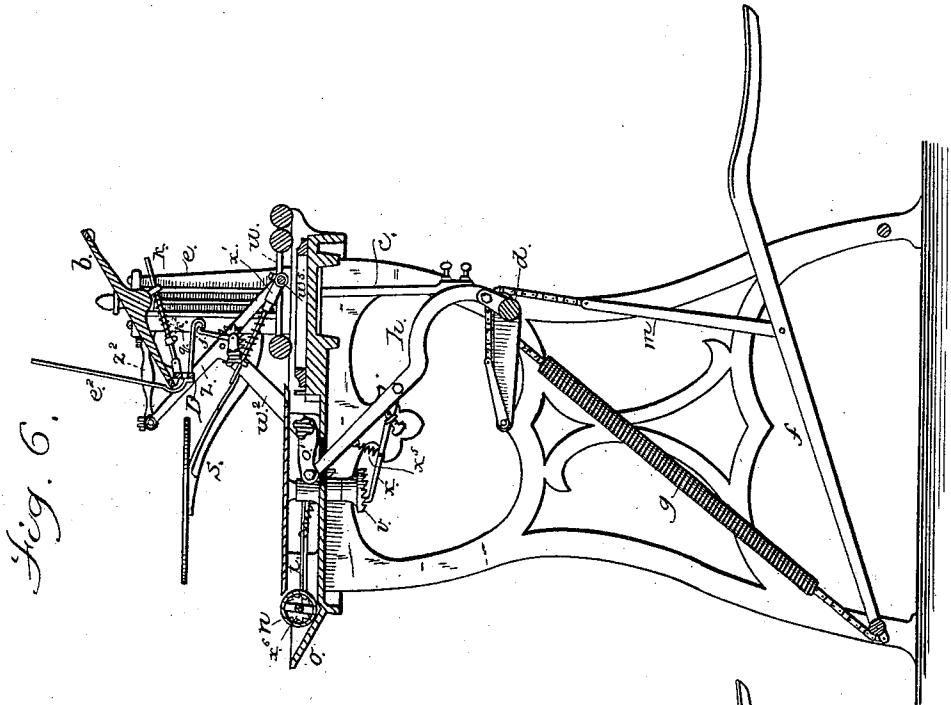
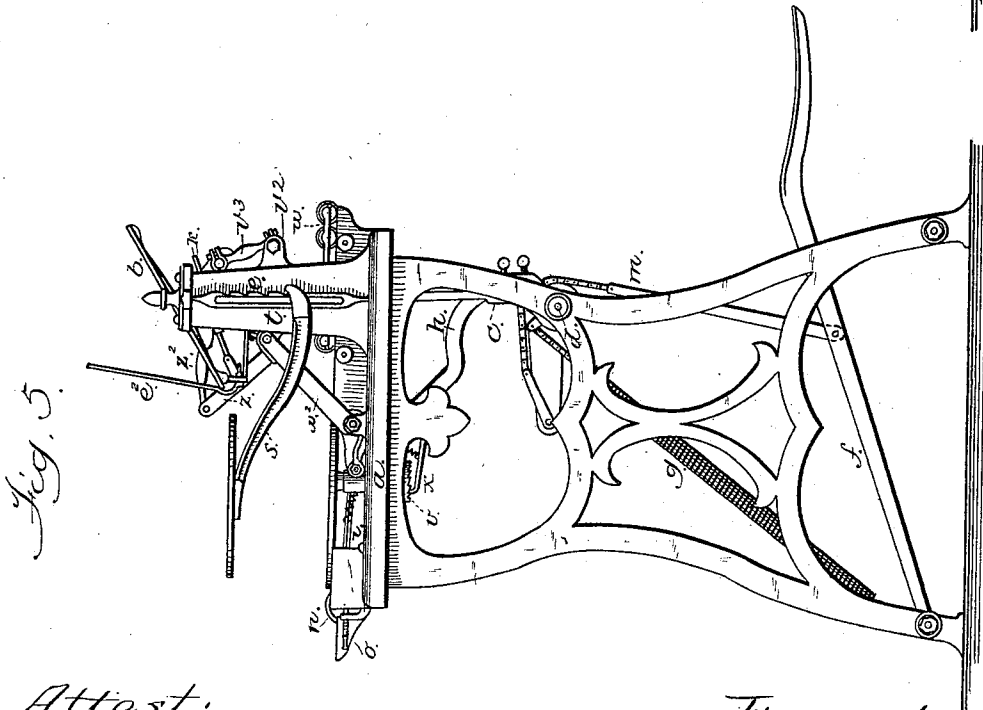
4 Sheets—Sheet 4.

F. H. RICHARDS.

OSCILLATING PRINTING PRESS.

No. 300,897.

Patented June 24, 1884.



*Attest;*  
*Shattis Fowler*  
*E. J. Redmond*

*Inventor;*  
*Francis H. Richards*  
*by Henry A. Chapin*  
*Atty*

# UNITED STATES PATENT OFFICE.

FRANCIS H. RICHARDS, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO  
THE GILMAN VERTICAL PRESS COMPANY, OF NEW HAMPSHIRE.

## OSCILLATING PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 300,897, dated June 24, 1884.

Application filed May 2, 1882. (No model.)

*To all whom it may concern.*

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Oscillating Printing-Presses, of which the following is a specification.

This invention relates to improvements in oscillating printing-presses, and has reference to the inking and tympan-finger-operating mechanisms thereof, the object being to simplify and render said devices more effective, and to cause the tympan-fingers to quickly move from an open position to clamp the paper upon the platen.

In the drawings forming part of this specification, Figure 1 is a view, partly in section and partly in dotted outline, of a printing-press embodying my improvements, in which figure the parts shown in dotted outline are located in front of those shown in full lines. Figs. 2, 3, and 4 are detail parts. Fig. 5 is an end elevation, and Fig. 6 is a like view, partly in section.

This invention is in the nature of an improvement upon my patent of May 10, 1881, No. 241,421, to which reference may be had. In this improved machine the platen *b* is adapted to stand with the face thereof away from the operator when in a position to receive the paper to be printed upon, whereas in the machine shown in said patent the platen faced the operator to receive the paper. The improved construction herein shown and described adapts the machine to said change of platen, and provides an ink-fountain and means for automatically inking the rollers, and at the same time much simplifies the press, which is adapted to be used as a foot-press for printing forms of limited dimensions.

The bed of the machine is indicated by *a*, and is secured to suitable legs, as indicated in dotted lines in Fig. 1, and said bed is provided with hollow guide-posts *ee* for the platen *b*, and the latter is fitted to slide vertically between said posts, and to be oscillated substantially in the manner set forth in said patent, said platen being connected with one of said posts by its arm *v*<sup>2</sup>

and the connecting-rod *v*<sup>3</sup>, Fig. 4, and the connecting-rods *c*, forming the proper connections between the rock-shaft *d* and the boxes within said posts, which receive the ends of the platen-shaft. The usual provision for securing the form to be printed from is made on bed *a* between the posts *ee*. The functions of the arm *v*<sup>2</sup> and connecting-rod *v*<sup>3</sup> are described in my Patent No. 241,421, of 1881, wherein those parts are shown and described.

The rock-shaft *d*, for the sake of lightness, great rigidity, and economy, is made by casting it hollow, and at the same time producing it with arms thereon completely formed for connecting to it the platen-rods *c*, the treadle *f*, the reacting springs *g g*, and the ink-roller-frame connecting-rod *h*. Said shaft *d* is hung in suitable bearings on the legs of the machine transversely under bed *a*. The ink-table used in this machine is of the rotating class, and is hung in bed *a*, standing above the surface of the latter, and provided with a ratchet, *v*, at the lower end of its stem under said bed.

An inking-roller-frame oscillator, *w*<sup>2</sup>, is pivoted to bed *a*, as shown in Fig. 1, and is provided on its lower horizontal rail with an arm, *o*<sup>1</sup>, to which is pivotally connected one end of the connecting-rod *h*, the opposite end of the latter being similarly connected to an arm on the rock-shaft *d*. A pawl, *x*, is pivoted to said rod *h*, and by means of an intermediate spring, *x*<sup>5</sup>, Fig. 4, the free end of said pawl is held in engagement with the ratchet *v* on the ink-table stem.

An ink-fountain, *o*, is located on bed *a* beyond the ink-table, in one side of which is suitably hung the roller *n*. Said fountain-roller is provided with a series of ratchet-teeth, *x*<sup>6</sup>, within one end, and a pawl, *i*, is supported on the face of the bed under the ink-table, one end of which engages with said ratchet-teeth in the end of roller *n*. The aforesaid oscillator *w*<sup>2</sup> is provided with a short arm, *o*<sup>3</sup>, on its under side, near arm *o*<sup>1</sup>, which engages in a slot near one end of said pawl *i*.

The inking-roller frame *w* consists of two parallel bars united by a centrally-located transverse rod, *w*<sup>5</sup>, onto which they are solidly cast, and which also supports a spring-rod, *x*<sup>7</sup>.

The aforesaid roller-frame bars have depressions in their outer sides, near their centers, and they support the usual inking-rollers. Said inking-rollers are provided with suitable collars, whose peripheries roll on elevated ways standing above the face of bed *a*, as shown. A roller-frame and tympan-finger yoke, *z*, is pivoted between the arms of the oscillator *w*<sup>2</sup>, and is provided with two downhanging arms, the lower ends of which engage in the aforesaid depressions in the inking-roller-frame bars, and has an upwardly-projecting arm, which is connected to one of posts *e* by the connecting-rod *z*<sup>2</sup>. A short arm is provided on the horizontal portion of said yoke, through which the end of the spring-rod *x*<sup>2</sup> passes. In machines of this class it is essential that the action of tympan-fingers against and from the platen should be effected very quickly, and particularly that after the paper shall have been laid upon the platen the said fingers shall be caused to strike the paper with the beginning of the movement of the platen to turn toward the form, and that when said platen turns back from said form it shall hold the printed sheet up to the completion, or nearly so, of its oscillatory movement.

In order to produce the above-described desired action of said tympan-fingers, the following peculiar broken connection between the tympan-finger bar *D*, which is hung upon one edge of said platen, and the yoke *z* is constructed. Said tympan-finger bar, whose construction is shown in Fig. 3, (a part of the platen being there shown in dotted lines,) supports the tympan-fingers *e*<sup>2</sup> by means of screws through the ends of the latter, which pass through a horizontal slot in said bar, whereby said fingers are adjustable to different positions thereon. Said bar *D* is provided with short bearing-arms *e*<sup>3</sup>, which engage in proper projections on the back side of platen *b*, and has an arm, *g*, provided with a hooked end, and has also a short slotted arm, to which is pivotally attached the spring-rod *k*, whose upper end passes through a boss on said platen, and between which and a collar on said rod the spring *k*<sup>2</sup> is compressed. A swinging tongue, *j*, is pivotally attached to an arm on the yoke *z*, the free end of which tongue is adapted to be caught in the hooked end of the arm *g*, when the platen swings up to the position shown in Fig. 4, and to be instantly disengaged therefrom when the platen is started in the opposite direction.

The operation of this machine is as follows: Ink is put into the ink-fountain *o*, and roller *n* is thereby supplied. The type-form is placed and secured on bed *a*, between the posts *e*, and the paper to be printed upon is held for an instant on the face of platen *b*, while the operator presses his foot upon the treadle *f*. The first movement of said treadle starts shaft *d*, and causes rod *h* to draw upon arm *o*<sup>2</sup> and swing the oscillator *w*<sup>2</sup> simultaneously with the downward and turning movement of platen *b* through its connection with shaft *d* by rods

*c*. Said movement of the oscillator *w*<sup>2</sup> is imparted to the yoke *z*, causing the tongue *j* to be carried away from the hooked arm *g*, and permitting the spring-rod *k* to be forced by spring *k*<sup>2</sup> downward against the arm on bar *D*, and thus to swing said bar and the fingers *e*<sup>2</sup>, bringing the latter quickly and strongly against the face of the platen, and there clamping the paper.

Simultaneously with the above-described movements of platen and tympan-fingers, the inking-roller frame moves along, carrying the inking-rollers from over the type-form to and over the ink-table, and the latter, before said rollers reach it, is revolved slightly by the action of the rod *h* and pawl *x*, and the pawl *i* also operates to slightly turn the ink-roller *n*. Said roller-frame *w* is carried far enough across said ink-table to bring the single roller hung in one end of said frame against and over the fountain-roller *n*, from which it takes a supply of ink. The operator, at this stage of the movement of the parts, has brought the treadle *f* quite down, and the platen to bear with great force against the type-form, and releasing said treadle, springs *g* rock the shaft *d* back to its starting position, and return the above-named operative parts to the point from which they started. In so doing ink is carried from roller *n* over the ink-table, and from the latter over the type-form, and as said tongue *j* and hooked arm *g* again meet they become again engaged, and cause the fingers *e*<sup>2</sup> to swing away from the platen, releasing the printed paper, so that it may be removed. The spring-rod *x*<sup>2</sup> operates to hold the inking-roller frame *w* closely in contact with the type-form and the ink-table, as the inking-rollers pass over them. The table-arms *s* support suitable tables, on which to place paper, &c., and have slots through their ends, through which the notched posts *t* pass, and upon which, supported by engagement with the notches thereon, said arms are adjustable to different heights. Said posts *t* are pivoted, one end in bed *a*, and one end to posts *e*, and so permit the tables supported on arms *s* to be swung to convenient positions.

What I claim as my invention is—

1. The rock-shaft *d*, the oscillator *w*<sup>2</sup>, hung on bed *a*, and the rod *h*, connecting said shaft and oscillator, the yoke *z*, pivoted to said oscillator and to one of posts *e* by rod *z*<sup>2</sup>, and the inking-roller frame *w*, all combined and operating substantially as set forth.

2. The combination, with the yoke *z* and with the inking-roller frame *w*, of the spring-rod *x*<sup>2</sup>, substantially as set forth.

3. The yoke *z*, the tongue *j*, hung on said yoke, the tympan-finger bar *D*, hung on the platen *b*, and provided with the hook-arm *g*, the spring-rod *k*, and the platen *b*, all combined and operating substantially as set forth.

FRANCIS H. RICHARDS.

Witnesses:

H. A. CHAPIN,  
R. S. HYDE.