3 Sheets—Sheet 1.

C. W. PRATT.

PIN-STICKING MACHINES FOR KEYBOARDS.

No. 182,705. Patented Sept. 26, 1876.

Fig 1

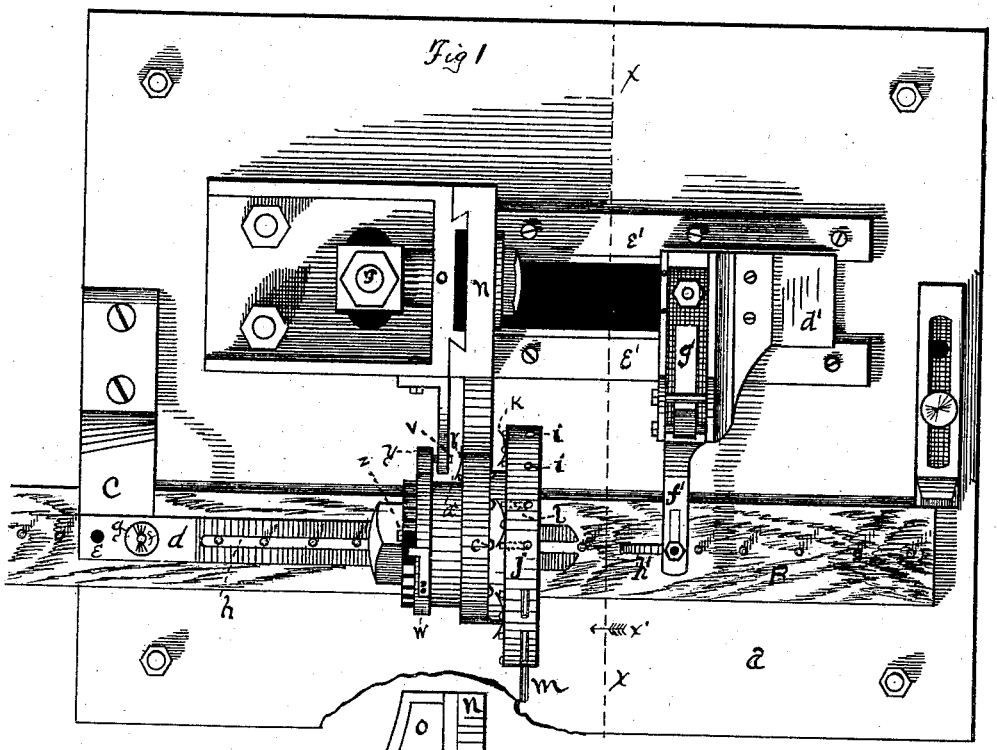

Fig. 2.

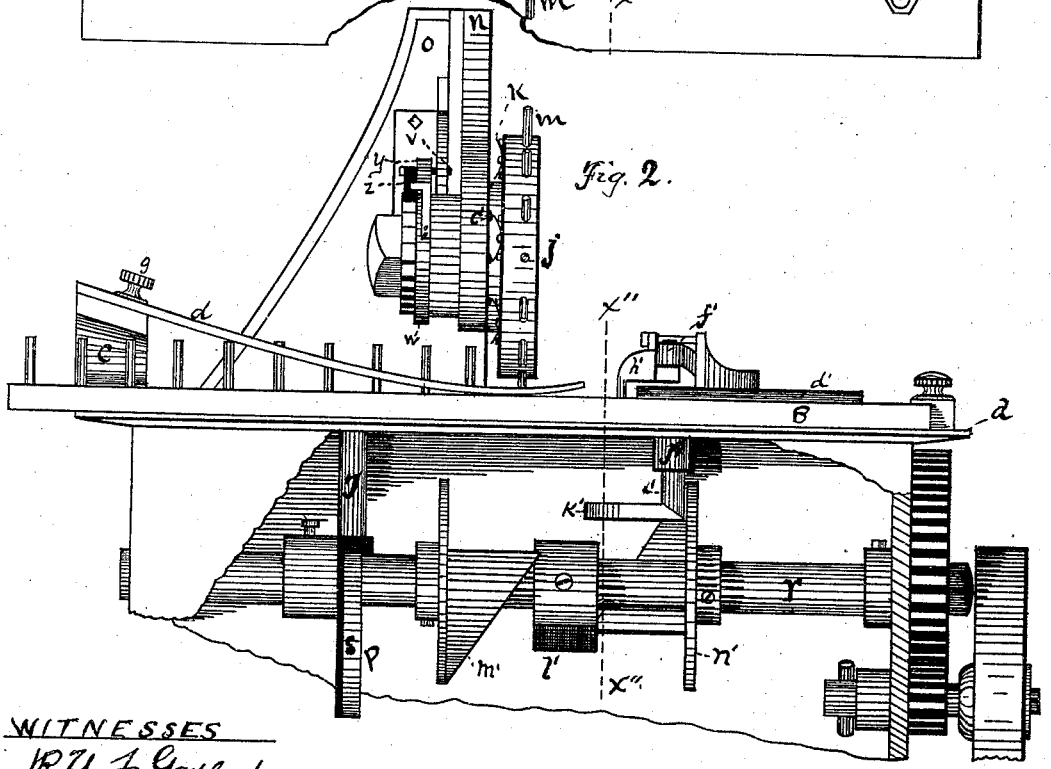

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Fig 3

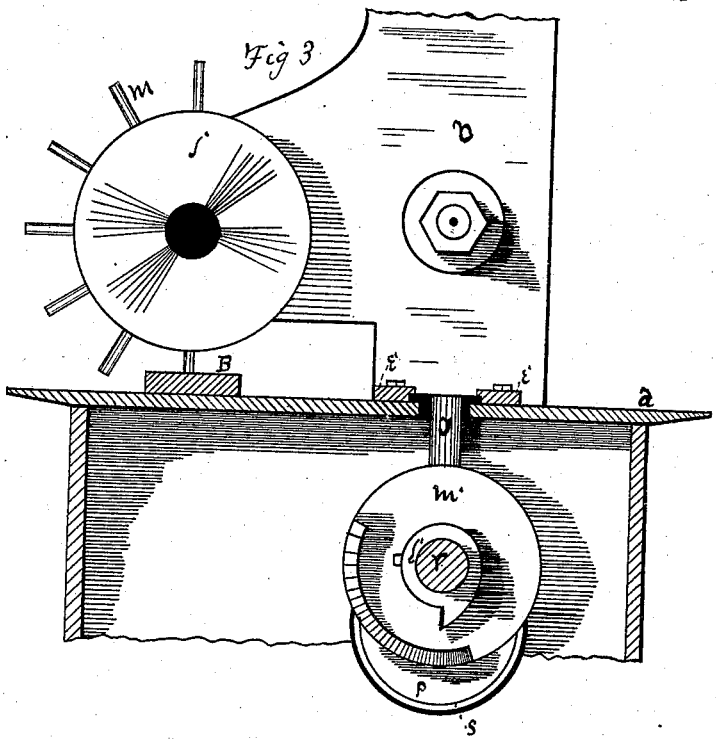

Fig 4

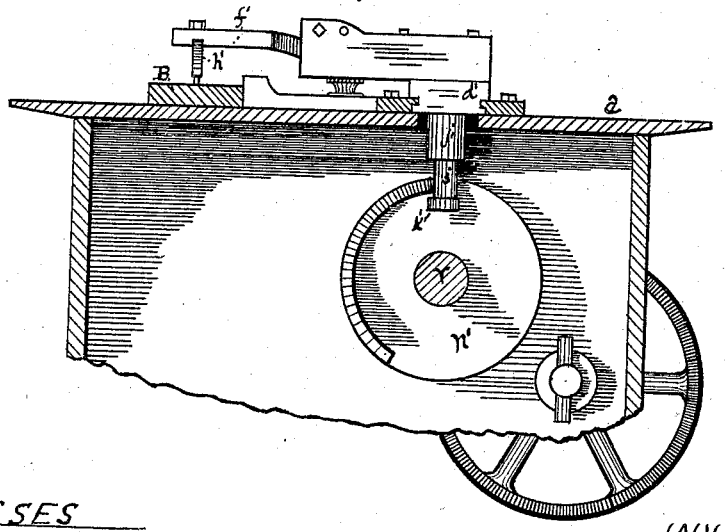

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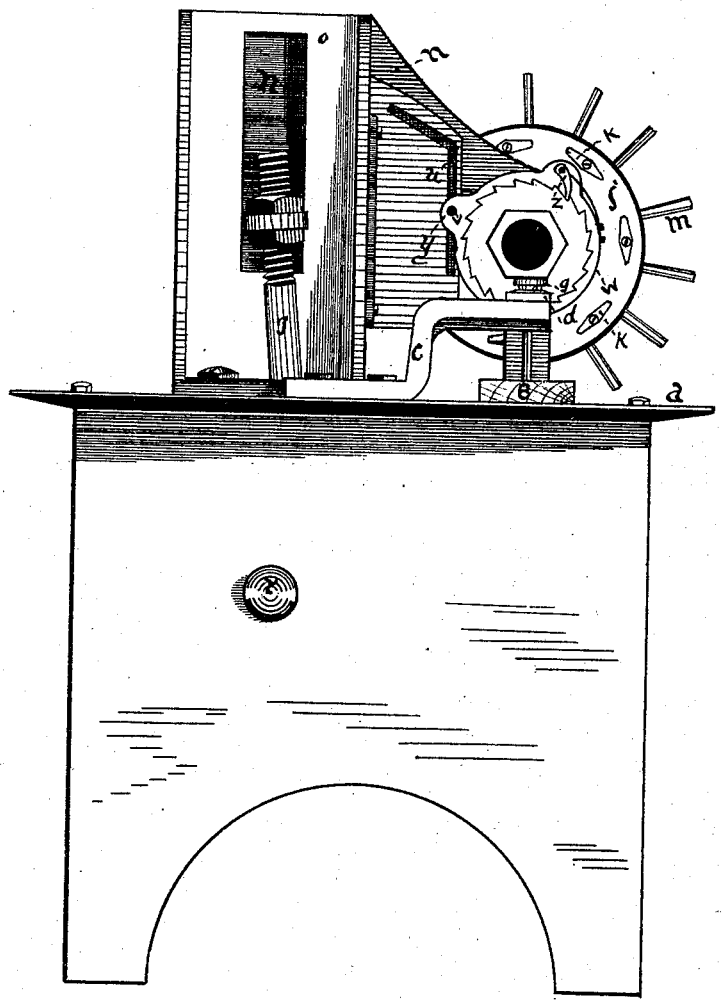
Fig 5



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UNITED STATES PATENT OFFICE.

CHARLES W. PRATT, OF DEEP RIVER, CONNECTICUT, ASSIGNOR TO PRATT, READ & CO., OF SAME PLACE.

IMPROVEMENT IN PIN-STICKING MACHINES FOR KEY-BOARDS.

Specification forming part of Letters Patent No. **182,705**, dated September 26, 1876; application filed March 20, 1876.

To all whom it may concern:

Be it known that I, CHARLES W. PRATT, of Deep River, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements pertaining to a Machine for Sticking Pins in Key-Boards for Musical Instruments, of which the following is a specification, reference being had to the accompanying drawings, where—

Figure 1 is a top view. Fig. 2 is a front view. Fig. 3 is a sectional elevation on the plane *x x*, looking in the direction denoted by the arrow *x'*. Fig. 4 is a sectional elevation on the plane *x'' x''*, looking in the opposite direction from that indicated by the arrow *x'*. Fig. 5 is an end elevation of the left end.

In the manufacture of key-boards for pianos, melodeons, and organs, it is requisite that a row or rows of pins—generally of brass—be driven into a part of the wooden frame-work as guides and pivots for the keys. This machine is intended for driving such pins.

The letter *a* denotes the table of the machine; B, a wooden strip, into which a row of pins is being driven; *c*, an arched arm rising from the table, and *d* a spring-finger hung thereto upon pin *e* and screw-pin *f*, pressing upon the strip B, its pressure regulated by thumb-nut *g*, and bifurcated by the mortise *h* for the passage of the driven pins, and to guide the longitudinal motion of the wooden strip. The pins are fed, by hand or by appropriate mechanism, into holes *i* in the rotary carrier-disk *j*, and are held from accidentally escaping by springs *k* bearing upon pins *l*, which, in turn, bear against the pins *m* after they are in the holes *i*. This carrier-disk is hung in or to the vertically-reciprocating slide *n*, which, in turn, is hung by ways on the standard *o*, and has vertical reciprocation given it by the eccentric *p* on shaft *r* through the medium of strap *s* and pitman T, so that the carrier-disk has an up-and-down motion at proper intervals, descending to drive a pin in the wooden strip, and then rising to permit the feed motion of the wooden strip. The carrier-disk has proper step-by-step rotation given to it through the medium of the cam-slot *u*, pin *v*, disk *w*, and pawl *y*, acting on the ratchet *z*, which is fast with the carrier-disk. Disk *w* is loose on the shaft of the carrier-disk.

The step-by-step feed motion of the strip *b* is given by means as follows: The letter *d'* denotes a slide moving in ways *e'*, carrying the arm *f'*—pressed down by spring *g'*—carrying the finger *h'*, which engages, as hereinafter described, with the pin-holes in the wooden strip. The arm *f'* is fast on the top of vertical rod *i'*, running down through the sleeve *j'*, which is fast on the bottom of slide *d'*, and it (the rod *i'*) has at its foot the lateral spur or arm *k'*.

The proper up and down motions of the rod *i'* and arm *f'* are given by the cam *l'*. Their proper lateral motions are given by the two French cams *m'* and *n'*. All three of these cams are on the shaft *r*. I will describe these motions, commencing at the position given to the feed-finger *h'* in Fig. 2. At this point the finger *h'* has fallen into one of the pin-holes in the wooden strip. The cam *n'*, striking the side of rod *i'*, moves it (and with it slide *d'*, arm *f'*, and finger *h'*) toward the carrier-disk till the feed-finger *h'* is directly under the carrier-disk; then the cam *l'* strikes the bottom of arm *k'* and raises the finger *h'* out of the pin-hole. While thus raised, and before the arm *k'* has dropped off the shoulder of cam *l'*, French cam *m'* strikes the end of arm *k'* and moves finger *h'* back, (to the right in Fig. 2,) and just after this backward lateral motion has commenced arm *k'* drops off shoulder of cam *l'* and finger *h'* drops upon the surface of strip B. The backward lateral motion of finger *h'* continues till it finds a fresh pin-hole, into which it drops, letting arm *k'* drop below the French cam *m'*, thus stopping the backward lateral motion. This brings the finger *h'* to the position shown in Fig. 2, which is the point at which I commenced the description of the motions of this feed-finger.

It would seem, at first glance, that some simple feed motion which would move the strip B the same distance each time would answer; but it is not so, for the pins vary in distance apart.

I claim as my invention—

1. The combination of rotating carrier-disk

j, having pin-holes *i* and springs *k*, with pins *l*, all substantially as described.

2. The combination of rotating carrier-disk *j* with slide *n*, standard *o*, disk *w*, pawl *y*, and ratchet *z*, all substantially as described.

3. In a pin-sticking machine for musical instruments and other key-boards, the combination of table *a* with bifurcated pressure-finger *d*, all substantially described.

4. The combination of slide *d'* with reciprocating arm *f'* and finger *h'*, all substantially as described.

5. The combination of rod *i'* with cam *l'* and French cams *m' n'*, all substantially as described.

6. The combination of French cams *m' n'* and cam *l'* with rod *i'*, slide *d'*, arm *f'*, and finger *h'*, all substantially as described.

7. The combination of carrier-disk *j*, slide *n*, and pitman T with eccentric *p*, shaft *r*, cams *l' m' n'*, rod *i'*, arm *f'*, and slide *d'*, substantially as described.

CHAS. W. PRATT.

Witnesses:

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GIDEON PARKER.