4 Sheets—Sheet 1.

C. R. DOANE.

MACHINE FOR PUTTING UP SEIDLITZ POWDERS.

No. 190,564. Patented May 8, 1877.

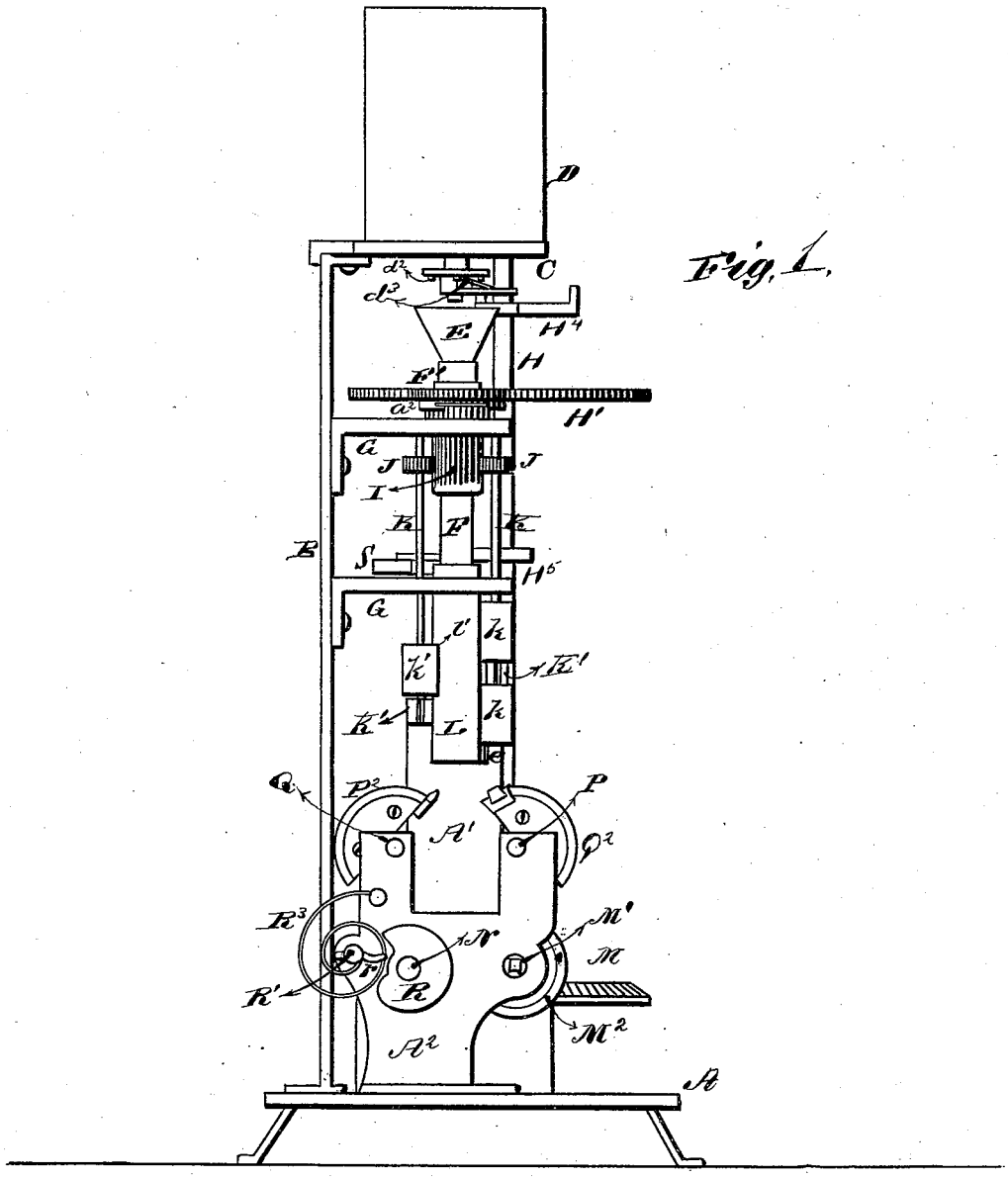

Fig. 1.

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Fig. 2.

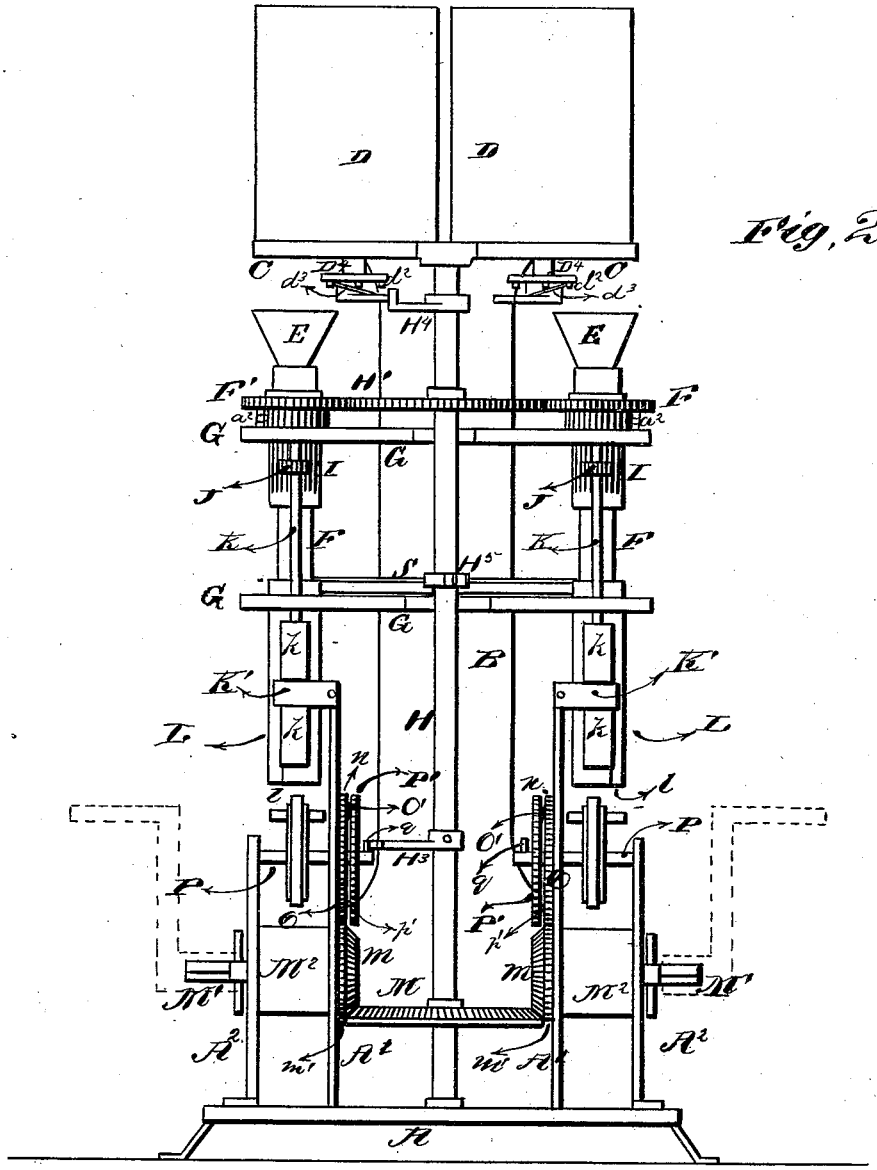

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Fig. 4.

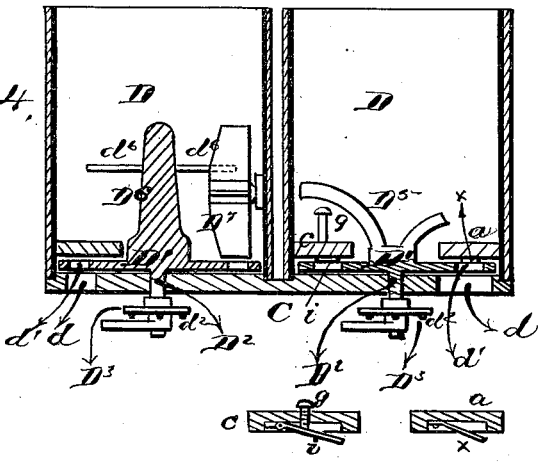

Fig. 3.

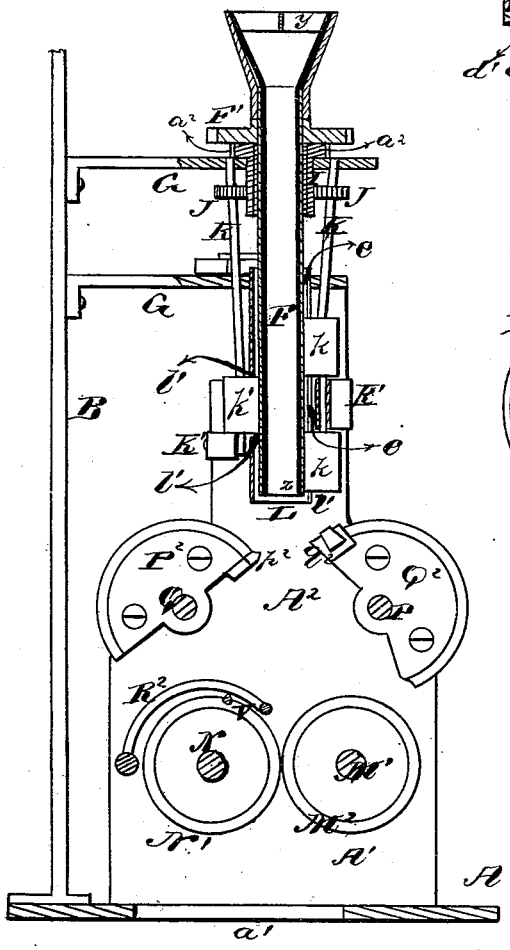

Fig. 5.

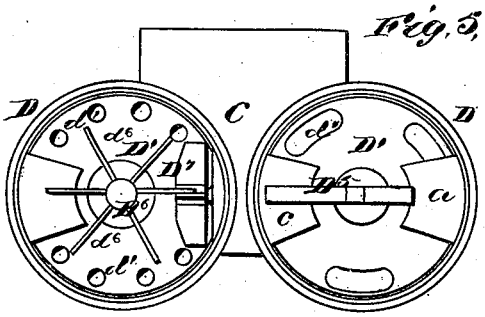

Fig. 6.

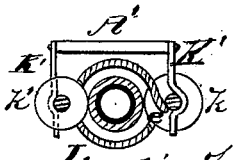

Fig. 7.

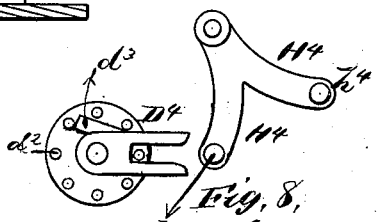

Fig. 8.

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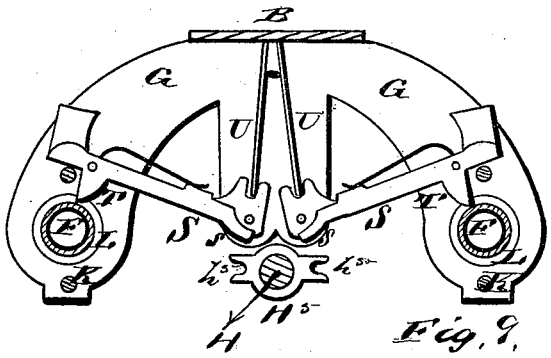
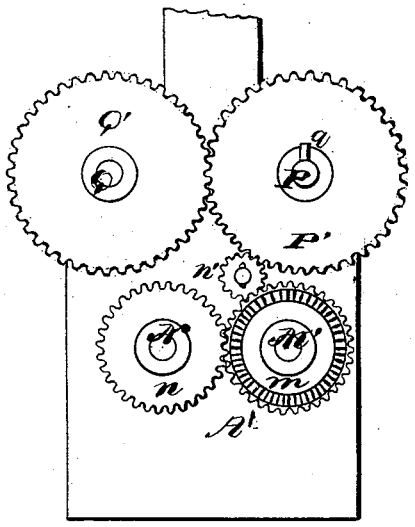


Fig. 9.



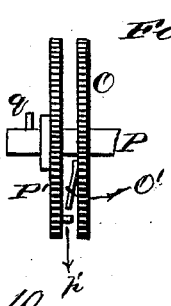


Fig. 11.

Fig. 10.

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UNITED STATES PATENT OFFICE.

CHARLES R. DOANE, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINES FOR PUTTING UP SEDLITZ POWDERS.

Specification forming part of Letters Patent No. **190,564**, dated May 8, 1877; application filed April 14, 1877.

To all whom it may concern:

Be it known that I, CHARLES R. DOANE, of Brooklyn, in the county of Kings and State of New York, have invented a new and valuable Improvement in Machine for Putting up Sedlitz Powders; 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, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side elevation of my machine, and Fig. 2 is a front view thereof. Fig. 3 is a central vertical sectional view of the same. Fig. 4 is a central sectional view of the receptacles, and Fig. 5 is a plan view thereof. Figs. 6, 7, and 8 are detail views of the same. Fig. 9 is a horizontal sectional view, and Figs. 10 and 11 are detail views.

The nature of my invention consists in the construction and arrangement of a machine for putting up sedlitz or other powders of varying sizes in paper and folding said paper, as will be hereinafter more fully set forth.

In the annexed drawings, which fully illustrate my invention, A represents the base or bed plate of the machine, which has an aperture, a^1, near each side, and also supports at each side two upright plates, A^1 and A^2, respectively arranged on the inner and outer sides of said openings. The base or bed plate A has an upright standard, B, at the rear, which has at its top a platform, C, for supporting two receptacles, D D, in which the powders are placed to be measured and fed to the machine below by the feeding mechanism hereinafter described.

The platform C forms the bottom for the two cylindrical receptacles or hoppers D D, and in said bottom is a feed-opening, *d*, for each hopper. Within each hopper D is a circular rotating disk, D^1, provided with a series of delivery or measuring perforations, d^1, arranged in a circle concentric with the hopper, and at equal distances apart. This disk has a stem or shaft, D^2, passing downward through the platform C, and provided below the same with a disk, D^3, secured to it. This disk is provided with a series of studs, d^2, arranged in a circle at equal distances apart, as shown in Fig. 8, which project from the lower side, and are operated upon, one by one, by a spring-catch, d^3, attached to a bifurcated arm, D^4, placed loosely on the shaft D^2.

The two arms D^4 D^4 are operated alternately by means of arms H^4 H^4, secured upon the vertical operating-shaft H, and provided with studs h^4 at their outer ends.

The shaft H is placed in suitable bearings in the base A and platform C, and is operated by suitable means to rotate first in one direction and then in the other.

When the shaft H is turned in one direction, one of its arms, H^4, will operate the bifurcated arm D^4 on that side, and turn the feeding-disk D^1 so that the next perforation d^1 in the series will be above the feed-opening *d*, and the powder contained therein be forced out; and when the shaft H turns in the opposite direction the feeding-disk in the other hopper will be operated in the same manner.

It will, of course, be understood that the number of studs d^2 in the disk D^3 must be the same as the number of perforations d^1 in the feeding-disk D^1.

Each hopper D is provided with a stirrer, and, as the character of the powders in the two hoppers is different, I have provided stirrers of different construction for the two hoppers. One of them consists simply of curved arms D^5, attached to and rotating with the upper end of the shaft D^2, or the upper side of the disk D^1. The stirrer in the other hopper consists of a post, D^6, carrying a number of radial rods, d^6, which, in succession, operate the blades or vanes of a rotary fan, D^7, journaled to the inside of the hopper, said post D^6 being attached to, and rotating with, the disk D^1 therein.

Within the hopper D are two stationary blocks, *a* and *c*. The block *a* has a spring, *x*, attached to its under side, which operates to throw the powder out of the measuring-openings d^1 at the proper time as each, successively, passes under the same.

To the under side of the block *c* is hinged a spring, *i*, which is regulated by the action of a screw, *g*, passing downward through the

block. When this screw is driven down it causes the spring *i* to press down into the powder in the registering or measuring apertures d^1 as they successively pass under it, and pack the powder therein more or less, according to the distance that the spring is made to project. This makes the powder larger, or, rather, heavier, because the space which the spring leaves indented in it is filled up as the disk turns farther round and before it is discharged.

From the hoppers D the powders pass through the openings *d* and drop into funnels E E, which are at the top provided with cross-bars *y*, on which the powder falls, and by which it is broken up, so as to descend the tube, F with facility.

Each funnel E is attached to the upper end of a tube, F, supported by bracket-arms G, attached to the rear standard B. On the tube F is placed a sleeved pinion, F′, connected with the tube by a pawl-and-ratchet device, a^2, so that when the pinion is rotated in one direction the tube will turn with it, but will remain stationary when the pinion is rotated in the opposite direction.

The pinions F′ gear with and receive motion from a spur-wheel, H^1, on the vertical driving-shaft H. Each of these pinions has also cogs I formed upon it, which engage with and turn pinions J J upon the upper ends of two front and rear vertical shafts, K K, journaled in the bracket-arms G. The front shaft K is provided with two rollers, *k k*, and the rear shaft with a similar roller, *k*′. The lower one of the two front rollers *k* is pressed toward the tube F by a spring, K′, which is attached to the inner upright plate A^1.

The lower part of the tube F is surrounded by a rigid cylindrical casing, L, leaving a space between them, said casing being attached to the lower bracket-arm G. The front of the casing L has a slot or opening, *e*, to allow the rollers *k* to be pressed against the tube, and is also provided with a rear opening, *l*′, to allow the roller *k*′ to set against it in like manner.

The construction and arrangement of these devices is fully shown in Fig. 3.

The vertical shaft H is, near its lower end, provided with a large crown-wheel, M, which meshes with and alternately communicates motion to two opposite pinions, *m m*, that are, respectively, carried upon the inner ends of two shafts, M^1, journaled in the pairs of upright plates A^1 A^2 at opposite sides of the machine. Each pinion *m* has attached to it a spur-pinion, *m*′, which communicates motion to another pinion, *n*, on a similarly-journaled shaft, N, and also through a small pinion, *n*′, Fig. 10, to a larger cog-wheel, O, that is loose on a shaft, P.

The shafts M^1 and N carry, respectively, rubber-covered rollers M^2 and N′. The loose wheel O is provided with a spring-catch, O′, which is adapted to engage with a pin, p^1, on a cog-wheel, P^1, turning with the shaft P, and this engagement is effected just after a pin, *p*, on said shaft P is struck by an arm, H^3, on the upright main shaft. The wheels P^1 and O then turn together with the shaft P, and the wheel P^1 communicates motion to another gear-wheel, Q^1, turning with a shaft, Q.

The shafts P and Q carry, respectively, the cam-shaped jaws P^2 and Q^2, which are faced with rubber. The jaw P^2 is provided with a transverse metal ridge or blade, p^2, and the jaw Q^2 with a rubber-filled box or trough, q^2, adapted to receive the same.

The shaft N, outside of the plate A^2, carries a small cam, R, that operates on a pin, *r*, on a shaft, R^1, which carries a bent folding-bar, R^2, and which is provided with a coiled spring, R^3, that tends to force said folding-bar downward toward the rubber.

All of the shafts P, Q, and R^1 are journaled in the plates A^1 A^2.

The construction, arrangement, and combination of tubes, gearing, and other devices above described are exactly alike on the two sides of the machine.

On the shaft H is further secured a collar, H^5, provided with two pairs of horns, h^5, which extend in opposite directions, and operate, respectively, upon the tails or rear points *s* of two pivotal, diverging, jarring-arms, S, so as to alternately withdraw their outer ends or hammers T from contact with the respective powder-conducting tubes F. As soon as the tail or point *s* is released by the horn h^5, the hammer T on the other end of the arm is thrown against its tube by the action of a spring, U. These jarring-arms S are pivoted upon the lower bracket G. Their operation is alternate, and they serve to loosen any powder which may adhere to the inside of either tube, and thus preventing said tubes from choking.

The powder is further prevented from sticking to the tube by a lining, *z*, Fig. 3, of paper, thin wood, or other suitable material on the inside.

The power for operating the machine may be applied directly to the shaft H in such a manner as to rotate the same first in one direction and then in the other; or such power may be applied to cranks on the ends of the shafts M^1, giving the same an alternately reciprocating rotary motion.

The alkaline and acid powders are placed in different hoppers D, and the paper cut in proper size is fed to the machine alternately by the right and left hands.

One paper is inserted between the tube F on the right and its front rollers *k k*, and as the machine turns in the proper direction this paper, by the action of the tube and rollers, is carried in between said tube and its sleeve or cylindrical casing L. By the time a half-revolution of the main shaft H is made this paper is rolled twice around the tube. As

soon as this is effected the shafts P and Q are turned by the action of the arm H^3 upon the pin q, so as to make the jaws P^2 and Q^2 grasp the paper tightly enough to prevent the escape of powder from the paper.

The shaft H is now reversed, and at the same time another paper inserted between the other tube F and its rollers. While this is being done the powder is deposited in the first paper from the hopper above, through the funnel E and tube F, by the devices already described; and as the movement progresses the jaws P^2 and Q^2 carry the paper down, the bottom thereof being folded up by the action of the bar R^2, and pass it roughly folded to the rollers M^2 and N'. The upper end of the paper is creased and partly folded by a cross-bar, V, on the roller N', and as the paper passes between the rollers M^2 and N' it is pressed together, folded, and then drops through the opening a^1 in the base A. Both sides of the machine operating alike, successive alkaline and acid powders are put up in folded papers and deposited below the machine.

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

1. In a sedlitz-powder machine, the combination of two distinct and separate mechanisms, operated alternately from or by devices attached to a central shaft having a reciprocating rotary motion, whereby the alkaline and acid powders are put up in papers and alternately deposited outside of the machine, substantially as herein set forth.

2. In a sedlitz-powder machine, a stationary hopper, an interior intermittently-rotating feeding-disk, with a device for regulating the weight of the powder, and an intermittently-rotating powder-tube, for conducting the powder to the paper, all combined substantially as herein set forth.

3. An intermittently-rotating powder-tube arranged within a stationary slotted sleeve or casing, for winding the powder-paper around the tube, as herein set forth.

4. The combination, with a powder-tube having the paper wound around it, of a pair of griping-jaws for carrying the paper down, a folder for folding the bottom, a pair of rolls for pressing the paper, and a folder for folding the top, substantially as herein set forth.

5. The combination of the perforated feeding-disk D^1, shaft D^2, disk D^3, with studs d^2, and the bifurcated arm D^4, with spring-catch d^3, substantially as and for the purposes herein set forth.

6. The arms H^4 H^4, provided with studs h^4, and attached to the reciprocating rotating shaft H, in combination with the bifurcated arms D^4 D^4, for alternately operating the feed-disks in the hoppers D D, substantially as herein set forth.

7. The combination, with the intermittently-rotating feeding-disk D^1, of the post D^6, with radial arms d^6, and the rotary fan D^7, as and for the purposes herein set forth.

8. The adjustable spring i, attached to a block, c, and regulated by a set-screw, g, in combination with the perforated rotating feeding-disk D^1, substantially as and for the purposes herein set forth.

9. In combination with the perforated rotating feeding-disk D^1, the adjustable spring i and the stationary spring x, both arranged to operate substantially as and for the purposes herein set forth.

10. The combination of the shaft H, having a reciprocating rotating motion, and provided with the spur-wheel H^1, the sleeved pinions F' F', the tubes F F, and funnels E E, the pinions and tubes being connected by pawl-and-ratchet devices, substantially as and for the purposes herein set forth.

11. The combination of the tube F, with cogs I, the shafts K K, with pinions J J, and rollers k k and k', and the stationary sleeve L, having slots or openings e l', substantially as and for the purposes herein set forth.

12. The spring K', in combination with the lower roller k, slotted casing L, and tube F, substantially as and for the purposes herein set forth.

13. The combination of the jaw P^2, having blade p^2, and the jaw Q^2, having rubber-filled box q^2, substantially as and for the purposes herein set forth.

14. The combination of the jaws P^2 Q^2, shafts P Q, with gear-wheels P^1 Q^1, loose wheel O, spring-catch O', pins p q, and the arm H^3 on the shaft H, all substantially as and for the purposes herein set forth.

15. The combination of the cam R, pin r, shaft R^1, folder R^2, and spring R^3, all substantially as and for the purposes herein set forth.

16. The combination of the arms S, with hammers T and points s, the springs U, and the collar H^5, with horns h^5 on the shaft H, substantially as and for the purposes herein set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

CHAS. R. DOANE.

Witnesses:

JOHN T. ASHLEY,

EDGAR SIDE.