



Date of Application, 1st Nov., 1890—Accepted, 28th Feb., 1891

COMPLETE SPECIFICATION.

Apparatus for Applying Adhesive Stamps or Labels to Envelopes and other objects.

I, ADAM GEORG DIENZ, Kataster-Inspector, of 4, Quercanal, Stralsund, Germany, do hereby declare the nature of my invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 The object of the present invention is to provide convenient means for fixing adhesive stamps or labels upon letters, or documents at any required place. The apparatus designed for this purpose serves not only to detach and moisten the stamps, but also to subsequently apply the pressure necessary for fixing the stamps in place by means of gum or other suitable binding material.

10 The stamps or labels to be used with this apparatus, are united into a strip or tape and wound upon a roller. Every time the apparatus is used, the strip is automatically fed forward for the length of a stamp or label, a stamp is detached from the strip, moistened, and gummed on at the desired spot.

The apparatus comprises two principal parts, namely the frame carrying the 15 guide, together with the coiled strip or coil of labels and moistening apparatus, and the mechanism which feeds the stamps or labels forward, detaches the individual labels or stamps from the strip, and applies them to the paper.

In the accompanying drawings:

Fig. 1 is a side elevation

20 Fig. 2 a front elevation, and

Fig. 3 a plan of an apparatus embodying this invention.

Fig. 4 is a section of the same along line  $x-x$  of Fig. 1.

Fig. 5 is a section along line  $y-y$  of Fig. 3, with the hand stamp or die in position ready for use.

25 Fig. 6 is a similar section, but with the stamp pressed down.

Fig. 7 is a cross section along line  $z-z$  of Fig. 5.

Figs. 8 and 9 respectively are an underside view and a plan of the guide bed.

Figs. 10 to 17 are separate views and sections of the stamp.

Fig. 14 is a front elevation of the knife.

30 With the aid of the said drawings, the apparatus may be described as follows:

On a stand or bedplate  $A$  which carries a pair of plates  $a$  and  $a^1$  is secured at  $b$  a guiding and supporting frame  $B$  by means of a hinge-joint, so as to allow it to move towards the said stand and away from the same. The said frame  $B$ , which consists of a base-plate  $p$  and a pair of cheeks  $w$ , has on each side a pin  $w^1$  (Figs. 1 and 3) 35 against which rest the springs  $c$  fixed to the stand  $A$ , so as to maintain the said frame in its highest position. The up-and-down motion of the frame, the former produced by the springs  $c$ , and the latter (during the use of the apparatus) by the hand guiding the stamp (Figs. 10 to 17) is limited by the inner edges of the frame  $a^0$  into which projects the front end of the frame  $B$ . At the opposite end of the 40 frame  $B$ , the cheeks  $w$  contain two recesses which form bearings for the roller  $C$ . The latter carries a loose bobbin or reel, upon which is wound the tape of stamps or labels. In these perpendicular recesses or slots the axle of the roller may move up and down, while the bobbin remains in contact with the base-plate  $p$  under the influence of its own weight. During this motion, the flanges of the roller 45 or bobbin which prevent the tape from falling down, are allowed free play in the slots  $w^2$  of the base-plate  $p$ .

The tape or strip wound off the reel  $C^1$  passes underneath a guide bar or bridge  $d$  laid across the frame  $B$  and slides over the plate  $p$  on to the first pair of rollers  $f$ . In the crossbar  $d$  are fixed two thin strips of metal  $e$ , which, like the crossbar  $d$  which 50 is secured to the cheeks  $w$ , do not rest on the base-plate  $p$ , but are held at a

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distance of about 1 millimetre from the same. The object of these strips  $e$  is to hold the tape of stamps down, and especially to retain the stamp, after it has been cut off, upon the first pair of rollers  $f$ .

For this purpose the said strips rest upon the pair of rollers, or strictly speaking, in the shallow grooves  $f^6$  (Fig. 8) formed in these rollers, whereby the strips  $e$  are prevented from shifting sideways. The pair of rollers turn in bearings, which are fixed on the springs  $f^2$  (Figs. 3 and 8), whereby they are pressed against the front ends of the strips  $e$  and consequently project slightly over the upper base-plate  $p$ , because the said strips  $e$  fit into the grooves  $f^6$  of the roller  $f$ , as mentioned above.

The pair of rollers  $f$  has the further object of feeding the strip forward and is therefore serrated. In the cross bar  $d$  the levers  $g$  are fixed on a revoluble axle  $g^1$  (Figs. 1, 5 and 6).

The rods  $g^2$  pivoted to the levers  $g$  carry at the bottom an axle  $g^3$  sunk crosswise into the lower face of the base-plate  $p$ , the said axle being, when the levers  $g$  are depressed by the stamp, likewise pressed downward, and thereby pressing down the small springs  $m$  which rest against the axle  $g^3$  and hold the latter up, together with the rods  $g^2$  and levers  $g$ .

These springs  $m$ , of which there are about 6 placed side by side on a plate  $m^2$  (Fig. 8) fixed on the lower face of the base plate  $p$ , carry at their front ends the pins  $m^1$  (Figs. 5 and 6) which project over the upper face of the plate  $p$  and enter an aperture  $d^1$  contained in the lower side of the bridge  $d$ . Consequently, as soon as a row of perforations of the tape of stamps situated underneath the said bridge  $d$ , and drawn along under the same, reaches the needles  $m^1$ , the latter pass through the perforations and prevent a further feed-motion of the tape.

The base-plate  $p$  extends only to the vicinity of the first pair of rollers  $f$ , but not to that part of the guide-piece, in which the 3 pairs of rollers are situated. Two of the said pairs, namely the first  $f$  and the last  $f^1$ , have their bearings in springs  $f^2$  and  $f^3$ , applied to the lower side of the base-plate and to the cheeks of the guide-piece, while the intermediate pair  $h$ , which is coated with felt, is held in supports  $h^1$  provided with clips.

These supporting posts  $h^1$  are movable up and down in guides  $h^2$  (Fig. 4) formed on the box  $k$  which serves as a water basin, (Figs. 4, 5 and 6), and springs  $h^3$  are employed, which press the said posts constantly upward, to a given point, which may be accurately chosen or regulated by means of adjustable nuts  $h^4$ , placed at the lower ends of the posts  $h^1$ .

The water basin  $k$  is secured in the stand A and provided with tubes  $k^1$  serving as guides. The supporting posts  $k^2$  (Fig. 4) movable up and down in these guides and constantly pressed upward by springs, carry at their upper ends a frame  $l$  which serves to receive the felt strip  $l^1$  reaching into the water of the basin  $k$ , and on these supports or spindles  $k^2$  rest the angle-pieces  $n$  (Fig. 4) fixed under the cheeks of the guide. As these spindles  $k^2$ , which are constantly pressed upward by springs, also serve to support the guide and to hold it up, the springs  $c$  which serve the same purpose, may be omitted in some cases.

Above the axle of the central pair of rolls  $h$ , the cheeks are provided with recesses  $w^2$  (Fig. 1) in such a way, that when the guide B is depressed, the said pair of rolls continues first of all to maintain its original position, and only when the guide is lowered still further, the frame  $l$ , which is also depressed by the angle-piece  $n$ , releases the said pair of rolls  $h$  and so carries it along. Clamp screws prevent the pair of rolls from turning too easily, causing the stamps to drag over them and so become moistened.

The frame  $l$  is semicircular; by which arrangement the strips of felt in so far as they lie within it assume a similar form and so press against the felt rolls  $h$  with the whole of their surface and moisten them. When the machinery is at rest, owing to the position of the pair of rolls  $f$  and the raised frame, the stamps are not pressed against the felt rolls, so that when the apparatus is not being used, the stamps are not moistened and consequently any danger of dissolving off the gum is avoided. On

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the underside of the bridge, as also on the opposite side of the bottom plate, a number of metal strips  $p^1$ , are inserted with their edges projecting, Figs. 5, 6, 9, the needles  $m^1$  pressing between them. The object of these strips is, to prevent the stamps encountering any resistance, either under the bridge, or on the guide plate at the edges of the grooves with which it is provided.

The plates  $a$  and  $a^1$  which are attached to the frame A, serve for receiving the documents, to which the stamps are to be affixed, or to which they have been attached already.

The plates may be omitted altogether, or arranged in a different manner, as for example near the apparatus, without being connected with it. If the stamps are to be attached on the plate  $a^1$ , the said plate is provided with a substratum of felt, indiarubber, or any other suitable material, in order to enable the die by which the stamps are attached, to be pressed down at the spot, where the stamp is to be attached, a guide ledge  $a^2$  provided with a triangular notch is affixed to one side.

This guide ledge  $a^2$ , in combination with the piston projecting above the plate  $a^1$  and raised by springs, serves to give a proper position to the document one side of which presses against the guide ledge  $a^2$ , the adjoining side coming in contact with the piston.

The recesses  $a^4$  in the guide piece  $a^2$ , the distance between which corresponds to the size of the stamps, enable one to apply a number of stamps in the proper position side by side quickly and with certainty. For this purpose, the plate  $a^1$  is likewise divided along its front edge, the subdivisions corresponding to the width of the stamps, and the die is so applied between the divisions, that its projecting knife rests against the front edge of the plate  $a^1$ . The cheeks  $w$  of the guide (Fig. 7), as also the bridge  $d$ , are internally somewhat conical, in order to facilitate the introduction of the die. Strengthening ribs  $w^4$  (Fig. 9) are formed on the underside of the bottom plate of cheeks  $w$ , the distance between them corresponding to the width of the stamps, and the under part of the die (13) being guided between them. Through these projections pass also the rods  $q^2$ , and the points,  $s^3$  of the die enter the groove or channel  $p^2$  in the bottom plate  $\mu$ .

11. The die consists of a handle D and the foot-plate E, connected with it. The opening  $o$  (Fig. 12) in the handle D is bushed and closed above by the screw  $o^1$ . A spiral spring  $o^2$  is situated inside this opening or hole  $o$  and acts upon the knife  $r$  (Fig. 14), which works in the foot plate E, and projects over the same. A sleeve  $r^6$  (Figs. 12 & 17) is mounted on the upward projection  $r^5$  of the knife, and on this sleeve presses the spring  $o^2$ . The object of the said sleeve is to prevent the knife from jamming, even if the knife is lifted up unequally; the knife  $r$  is provided at the sides with two projections  $r^1$ , which assist the guiding and enable the knife to be lifted. These projections slide in grooves  $r^2$  which are arranged in the sides of the foot of the die.

The upward movement of the knife  $r$  is limited by the edges of the groove or channel  $r^2$ , and the downward movement by the strips  $r^3$  let into the foot of the die. The knife  $r$ , which consists of three blades formed on a single leaf, and having a triangular shape, engages over the strips  $e$  (Figs. 5 & 6) with the nicks situated between every two of the blades, to which end the two grooves  $r^7$  (Fig. 16) are arranged in the footplate, and serves the purpose of effecting the almost complete separation or cutting apart of the stamps from one another.

The posterior end of the footplate, which is stepped back from  $r^4$ ,—the stepped back portion being of the same width as the stamps, *i.e.* of the same width as the clear space between the ribs  $w^4$  of the cheeks  $w$ —contains a casing or box  $s$  open on both sides, and in which works a piston  $s^1$  provided with two pins  $s^3$ , and constantly pressed by a spring  $s^2$  against the die foot wall at the inner end of the said casing, from which, however, it is unable to pass out, as a screw (Figs. 12 & 13) limits the action of the spring on the other side of the piston. The distance between the points  $s^3$  is the same, as the width of the stamps. The piston  $s^1$ , as also the bore of  $s$ , are stepped back—the spring  $s^2$  lying between the edges of these steps. The casing  $s$  is rigidly connected with the piston  $t^1$  guided in the tube  $t$ , and depressed

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by a spring acting upon the piston. By means of the pins  $s^3$  of the piston  $s^1$  which the tube carries, it catches into or engages in the perforations between two stamps, and so moves them forward. The casing  $s$  can be fixed higher or lower, by means of the nut  $t^2$  which also serves to prevent it from falling out. The front end of the footplate is provided with an inclined edge  $v^2$  to enable it to glide over the rollers  $f$  with greater ease; the said footplate is somewhat broader than the stamps, and may be covered with a sheet of felt or india-rubber, to facilitate the stamps being pressed on to the document.

The two points  $r$ , situated at this end of the footplate, where they are each held down by a spring, are either roughened or provided with small hooks, and may be made to project more or less by means of the nuts  $v^1$  situated at the upper end of their spindles or shanks. They serve the purpose of retaining on the bottom of the die the stamps that have been almost completely separated by the knife. To permit of the passage of the needles  $r$ , and subsequently of the knife  $r$ , through the line of perforations in the stamps, a certain clearance is left between the rollers of the first pair  $f$ , in addition to which the hook  $p^2$ , which is attached to the underside of the bottom plate  $p$  (Figs. 1 & 6), and on which the stamp comes to lie, is provided on its upper side with a nick. Consequently, the stamp, which in many cases has been completely separated during the perforation, and adheres firmly to the underside of the die, is carried over the moistened pair of rollers  $h$  during the forward motion of the die. This is effected by the first pair of rolls which press the stamp firmly against the die, and also by the needles  $v$  which have perforated the stamp. If it happens, that the stamp has not been completely cut off, owing to the above peculiarity of the knife, which takes place in the majority of cases, there accrues the advantage, that the connection between the strips of stamps, which are thus permitted to remain unsevered, causes them to be pulled through better than could be done by the sole action of the points  $s^3$  arranged in the back part of the die.

This connection is severed by the third pair of rolls  $r^1$ , which has its bearings in the spring  $r^2$  (Fig. 8) and lays itself with its notches closely against the projecting die, or against the india-rubber plate.

The said pair of rolls also presses on the stamp which is held fast by the hooks of the needles  $v$ , and completely tears off the stamp (which has already been partly severed from the strip by the knife  $r$ ) from the strip, which is held fast by the needles  $m^1$  of the small springs  $m$ , which have entered the perforation situated underneath the bridge  $d$ .

The stamps may, of course, be attached to the document on any other suitable plate lined with felt, rubber or similar material, or on a table, instead of using for this purpose the plate  $a^1$ .

A number of frames B, carrying the guides as described above, can be combined upon a single frame with the moistening devices above mentioned, in such a way, that a special guide and stamp roller or coil is provided for each variety of stamp, but only one die is required for all three kinds of stamps and guides, the said guides being placed close together and preferably parallel to each other.

The rollers, on which are wound a certain number of stamps from a 100 to a 1,000, can be provided with a suitable device, by means of which a control may be exercised at any moment, while the stamps are being used, so as to prevent subsequent counting from being necessary, or the stamps may be numbered consecutively.

The stamps are sold or consumed by the roll of 100, 200, 500, 1,000 or more; and it may be remarked, that even the rolls of 1,000 stamps have a diameter of not more than 5 cm., while single stamps may be detached from them.

## METHOD OF WORKING.

When the stamp spool  $C^1$  has been placed on the roller C and the basin K filled with water, so as to moisten the strips of felt and felt-rollers, the first stamp is grasped and shoved under the bridge  $d$ , at the same time pressing down the lever  $g$

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and thereby withdrawing the pins  $m^1$ , so that they no longer project above the foot plate  $p$ . The stamp, above mentioned, is drawn forward, until the stamp edge coincides with the front edge of the bottom plate. If now the lever  $g$  be disengaged, the pins  $m^1$  pass partially through the perforations of the stamp which is situated  
5 under the bridge, because the distance between the edge of the footplate and the pins (which are in the middle of the bridge) is equal to the width of four stamps.

In this way, the pins hold the strip of stamps fast. The die is now introduced between the cheeks  $w$  of the guide B in such a way, that that end which contains the casing  $s$  will be placed near the inner edge of the bridge  $d$ .

10 The die, which is straight on both sides underneath the ledges  $r^3$  near the point  $r^4$ , and wedge-shaped at its further end, has such a position, that the projections  $r^1$  of its knife  $r$  rest upon the cheeks  $w$  of the guide, while the levers  $g$  are situated underneath the wedge-shaped steps of the die. If the die be pressed down, the two levers  $g$  are carried with it, and the pins  $m^1$  are withdrawn from the  
15 perforations of the strip of stamps. Owing to the pressing down of the die, the knife  $r$  is drawn up into the foot of the die, or the die pressed down over the knife, owing to the fact, that the projections  $r^1$  (Fig. 14) rest on the cheeks  $w$ . When the die is pressed down, its back end rests upon the bottom plate, and its stepped or bevelled portion is situated between the ribs  $w^4$  of the cheeks  $w$ , its grooves  $r^7$   
20 gliding over the strips  $e$ , while the pins  $s^3$ , enter the groove  $r^2$ , (Fig. 9.) in the footplate, through the perforations situated in front and at the back of a stamp. In the meantime, the pair of rollers  $f^1$  are pressed down by the other end of the die, the surface of which projects slightly above the surface of the posterior end. By this means, the stamp situated at this place is pressed off the strip  $e$  and held  
25 tight between the roller and the underside of the die. The wedge-shaped steps at the posterior end of the die have been adopted, because the levers  $g$  in turning on their axes assume an inclined position, and they have the additional purpose of allowing a slow and gradual raising of the levers  $g$ , and the pins  $m$ , as soon as the die is shoved forwards. When the die is depressed in this manner, the pins  $s^3$  of  
30 the piston  $s^1$  movable in the casing  $s$  pass through the perforations at the ends of the stamp underneath it. The foremost points  $c$  do not come into action during this first depression, but merely enter the hooks  $p^3$ , and the space between the rollers  $f$ , since there is no stamp underneath them.

If now the die be pressed forward, until the projections of the knife or cutters  $r$   
35 leave the central raised portion of the cheeks  $w$ , the result is, that the spring  $o^2$ , (the projections  $r^1$  being freed), will drive the knife forward beyond the die-foot and past the front edge of the bottom plate, so as to separate the first stamp almost completely from the strip of stamps.

The forward motion of the die is limited by the front wall of the guide B, the  
40 feed motion of the strip of stamps is equal to the size of the stamps, but the forward movement of the die is somewhat greater.

By the first forward movement of the die, the first stamp, owing to the feed motion of the strip of stamps caused by the pins  $s^3$  and the close adhesion of the strip of stamps between the roughened roll and the foot-plate of the die, has reached  
45 the first pair of rolls  $f$ , so that the perforations between the first and the second stamp are situated exactly over the front edge of  $p$ .

If now the die be brought back into the first named position, upon the elevated portion of the guide cheeks, then depressed and in this position shoved forward, the first stamp which has been perforated by the points  $v$  and held fast under the  
50 die, is carried over the felt roll  $u$  and is thus moistened. The wet felt roller  $h$ , the upper surface of which has been moistened by depressing the die, occupies a position, in which its upper surface is situated in the same plane, as those of the two other rollers or even above it and is thus pressed by springs against the stamp. At the end of the forward movement, the knife  $r$  cuts off the second stamp almost  
55 completely.

The first stamp is now completely torn off from the strip, owing to the forward

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movement of the die, and this takes place before the greater portion of the second stamp has been separated, because the third roller  $r^1$  presses the stamp tightly against the foot of the die, and the strip is held fast by the two pins  $s^3$  situated upon the piston  $s^1$ . The front one of these pins strikes against the end of the groove  $p^2$  in such a way, that the piston  $s^1$  is arrested in its movement and pressed outwards. 5 The distance between the edge of the bottom plate and the groove amounts to the width of one stamp. The die which is now raised, carries upon the under surface of its broad front end a moistened stamp kept in position by the two pins  $v$ . This stamp may now be attached at any desired place. The document, letter &c., which it is desired to stamp, is placed upon the plate  $a^1$  or is held upon the same in proper 10 position. If it be desired, to attach the stamp on the side next to the pin  $a^2$ , the die is inserted into the front division and pressed. During this operation, the knife  $r$  lies against the front edge of the plate  $a^1$ , ensuring the proper position of the die and preventing it from being moved too far forward. If, on the other hand, the stamp is to be attached at that edge of the document which lies nearest to the 15 guide ledge  $a^2$ , the die is inserted with one of the lateral projections  $r^1$  of the knife into one of the triangular nicks corresponding to the position of the stamp, and then the die pressed down, during which motion the die is guided with one of its sides against the guide-piece, or ledge. In the same manner, several stamps may be applied side by side, the proper distance between them being determined by the 20 front divisions, as well as by the triangular nicks.

The stamp can also be attached to a document lying on the table or situated in any other convenient position, and it is possible, with some practice, to attach a number of stamps side by side by hand without employing the guiding devices. The attachment of the stamp takes place with perfect certainty and with about the 25 same speed as the stamping with colour dies. This arrangement produces the following results and advantages:—

1. Stamps can be applied to letters and other documents much quicker than by the methods hitherto generally employed.
2. The inconveniences arising from the tedious tearing off the stamps and from 30 the troublesome moistening are diminished.
3. An exact method of controlling the number of stamps that have been used up.
4. A very simple easy and convenient manipulation.

Having now particularly described the nature of my invention, and in what 35 manner the same is to be performed, I declare, that I claim:—

1. Apparatus for applying adhesive stamps and labels, comprising in its construction a stationary or lower part composed of guide piece, with stamp coil or reel, and a moistening device, and a portable or upper part composed of cutting and carrying device, brake and pressing appliance, said apparatus being adapted to 40 hold a ribbon of stamps or labels wound upon a reel or roller, to feed the strip forward at each operation for the length of one label, to retain it in the required position, to effect a preliminary partial separation of the label which has been seized by the stamp or die and held fast, to moisten and then completely separate 45 the same, and finally to apply it to any required part of the document, substantially as described.

2. In apparatus as specified in claim 1, a strip or ribbon of stamps or labels, wound upon a spool, substantially as described.

3. In apparatus as specified in claim 1, a pivoted guide B, held up by springs and carrying the coil or bobbin of labels or adhesive stamps, the upper surface of the said 50 guide serving as a support or path for the strip of stamps situated underneath the bridge  $d$  and the flat metal strips  $e$ , while the front end of the guide has the bottom plate cut out, for the reception of the rollers  $f$  and  $f^1$  supported by springs, and is provided with a hook  $p^2$ , in combination with the bridge  $d$  serving as a fulcrum support for the levers  $g$  which hold the axle  $g^3$  by means of rods  $g^2$  and serve to 55

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depress the springs *m* fixed on the lower surface of *B*, the said springs being armed with pins adapted to pass through the perforations between two stamps into the recesses of the bridge, substantially as described.

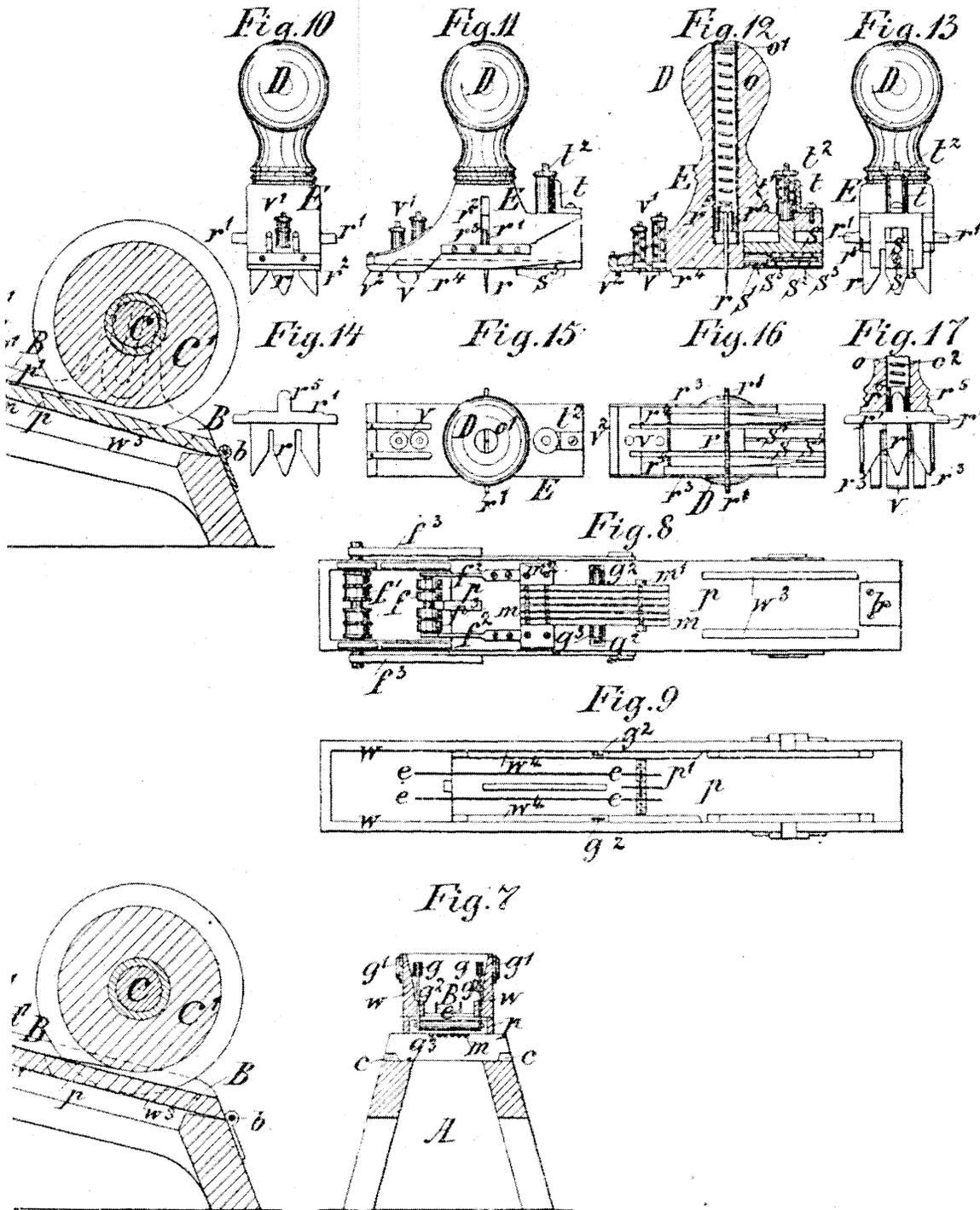
- 5 4. In apparatus as specified by claim 1, a stamp moistener, comprising a water receptacle into which dip strips of felt *l'* supported by a frame held up by springs, and a pair of felt-covered rollers *h* likewise held up by springs, the said rollers *h* being turned during the forward motion of the hand stamp or die, and adapted to touch the felt strips *l'*, when the guide *B* is being depressed, substantially as described.
- 10 5. In apparatus as specified by claim 1, a die or hand stamp having pins *v* and a knife which is constantly pressed downward by a spring, but withdrawn into the foot by applying pressure to the die, the said die or stamp containing also a casing *s* carrying a piston armed with pins and pressed downward by a spring acting on the piston *t*, the said die or hand stamp having in front a broken edge to facilitate the
- 15 forward or feed motion of the stamp, and a widened felt-covered part adapted to apply pressure to the entire surface of the stamp (including the edges), while the rear part is bevelled off or inclined for the purpose of acting slowly on the levers *g*, substantially as described.

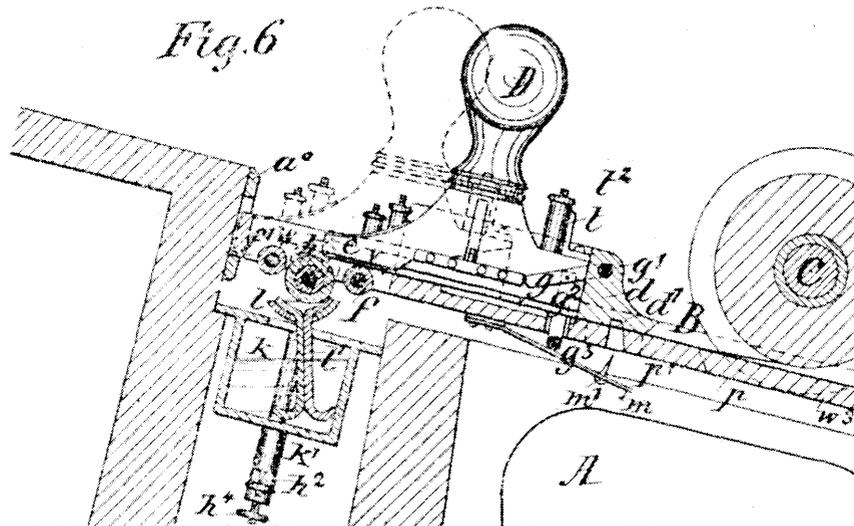
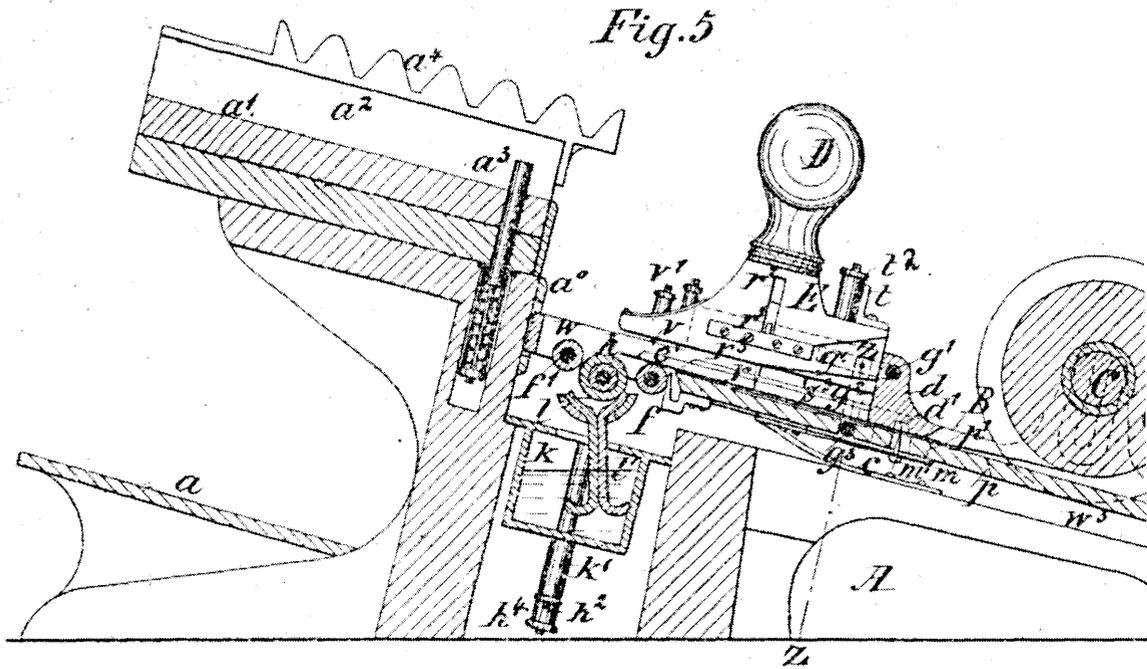
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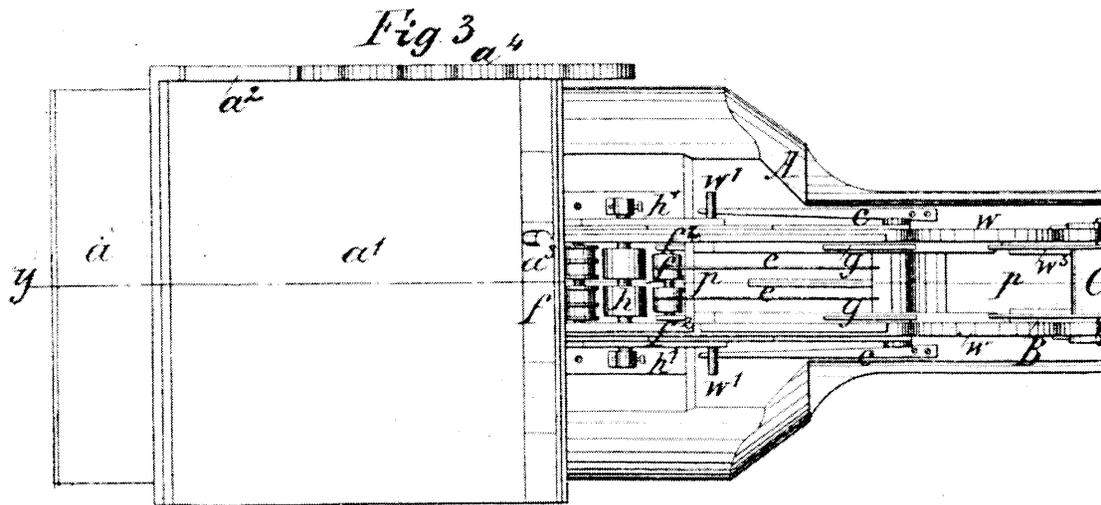
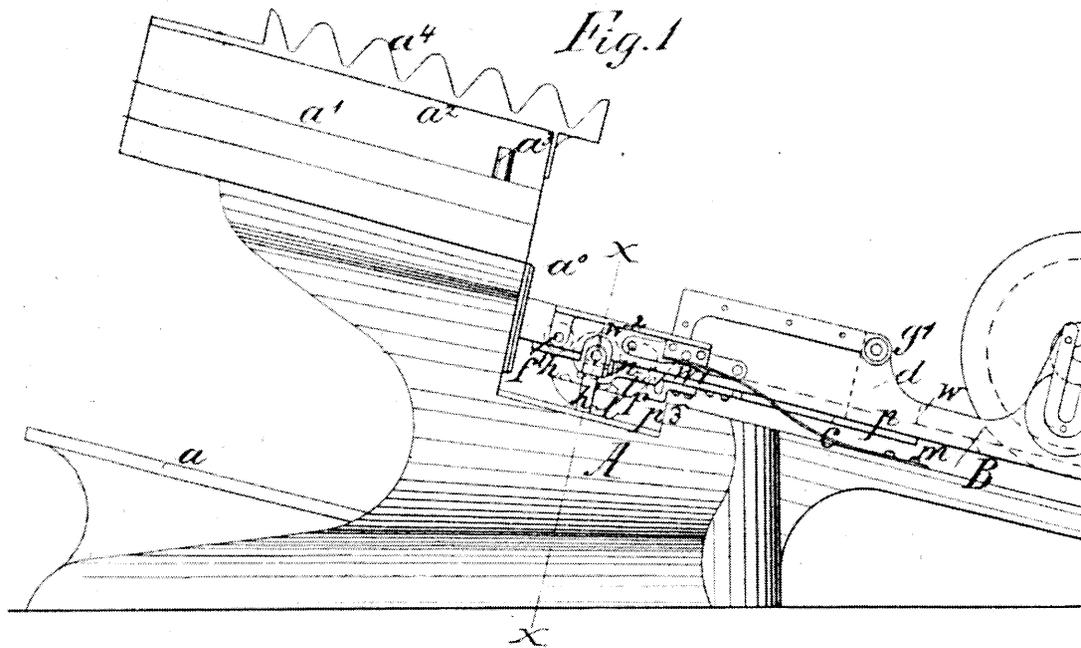
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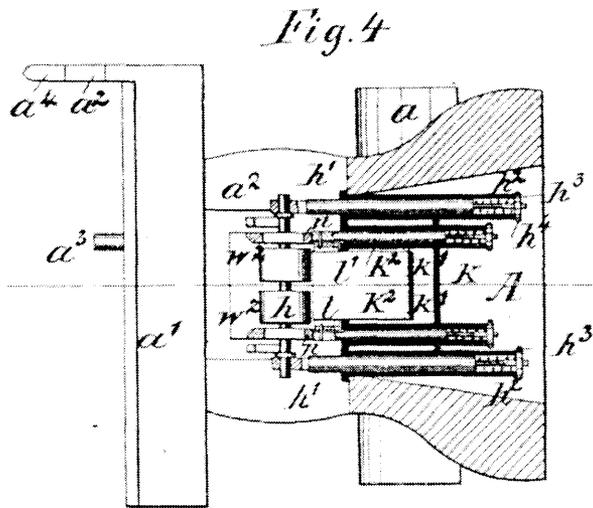
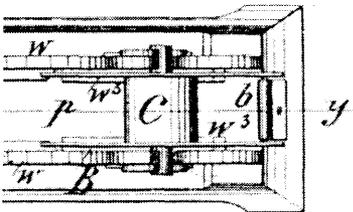
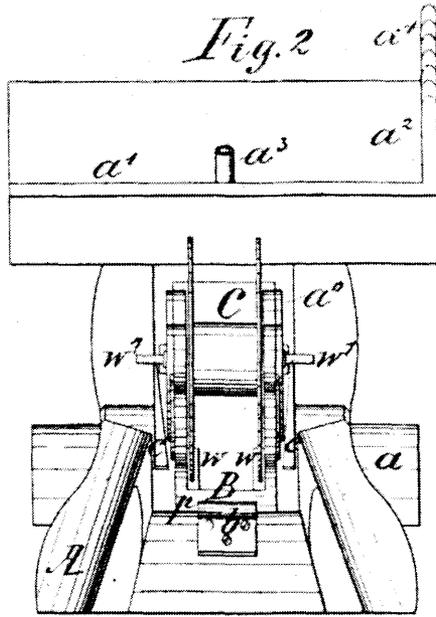
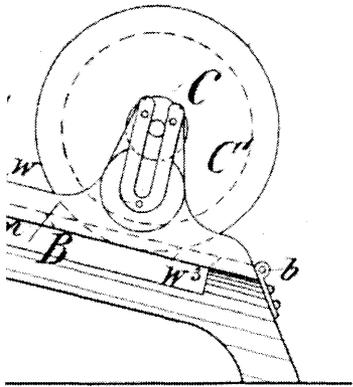
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433, Strand, London, Agents.

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