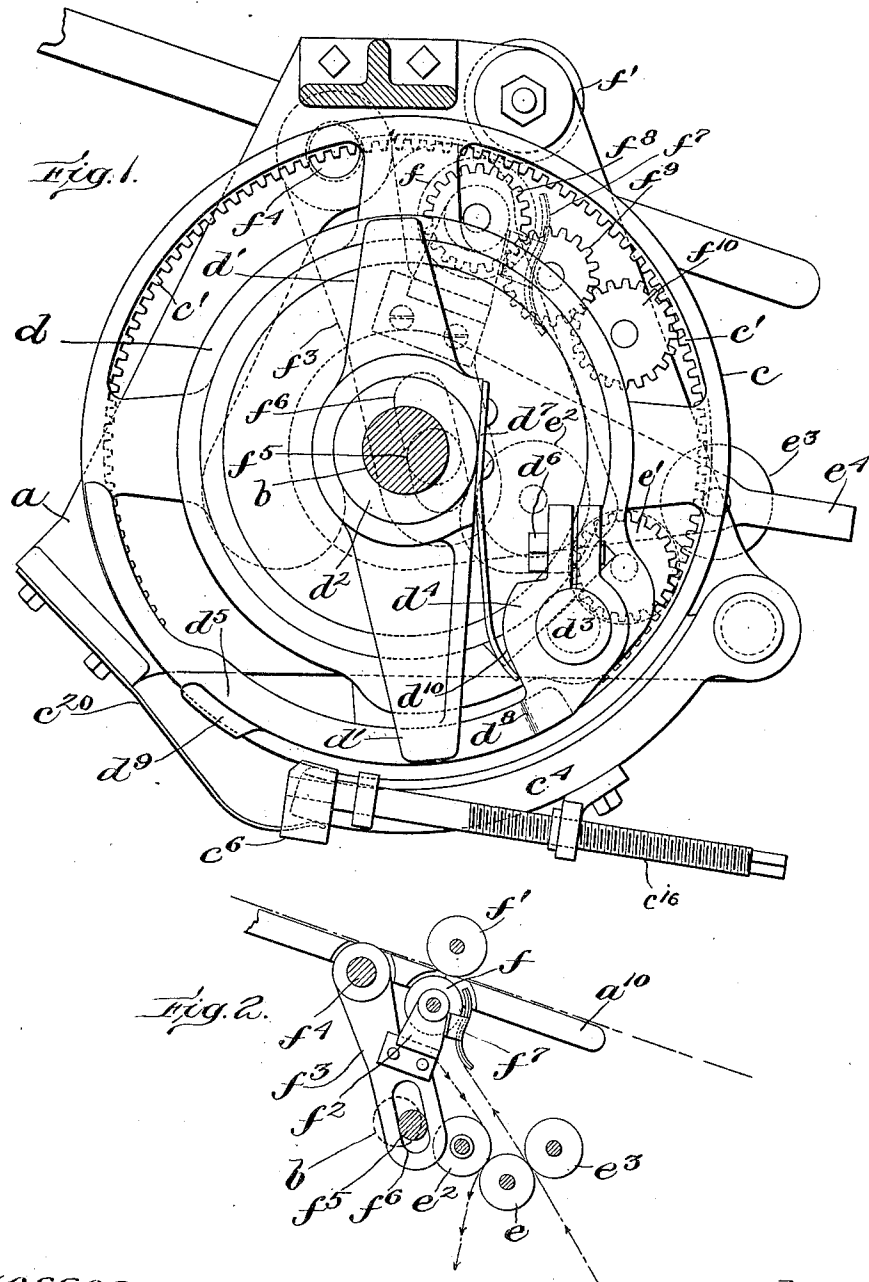


C. G. RICHARDSON.
 DEVICE FOR APPLYING TRANSFER STAMPS.
 APPLICATION FILED FEB. 11, 1911.

1,086,402.

Patented Feb. 10, 1914.
 3 SHEETS—SHEET 1.



Witnesses:
M. G. Kennedy
J. A. Eichorn

by

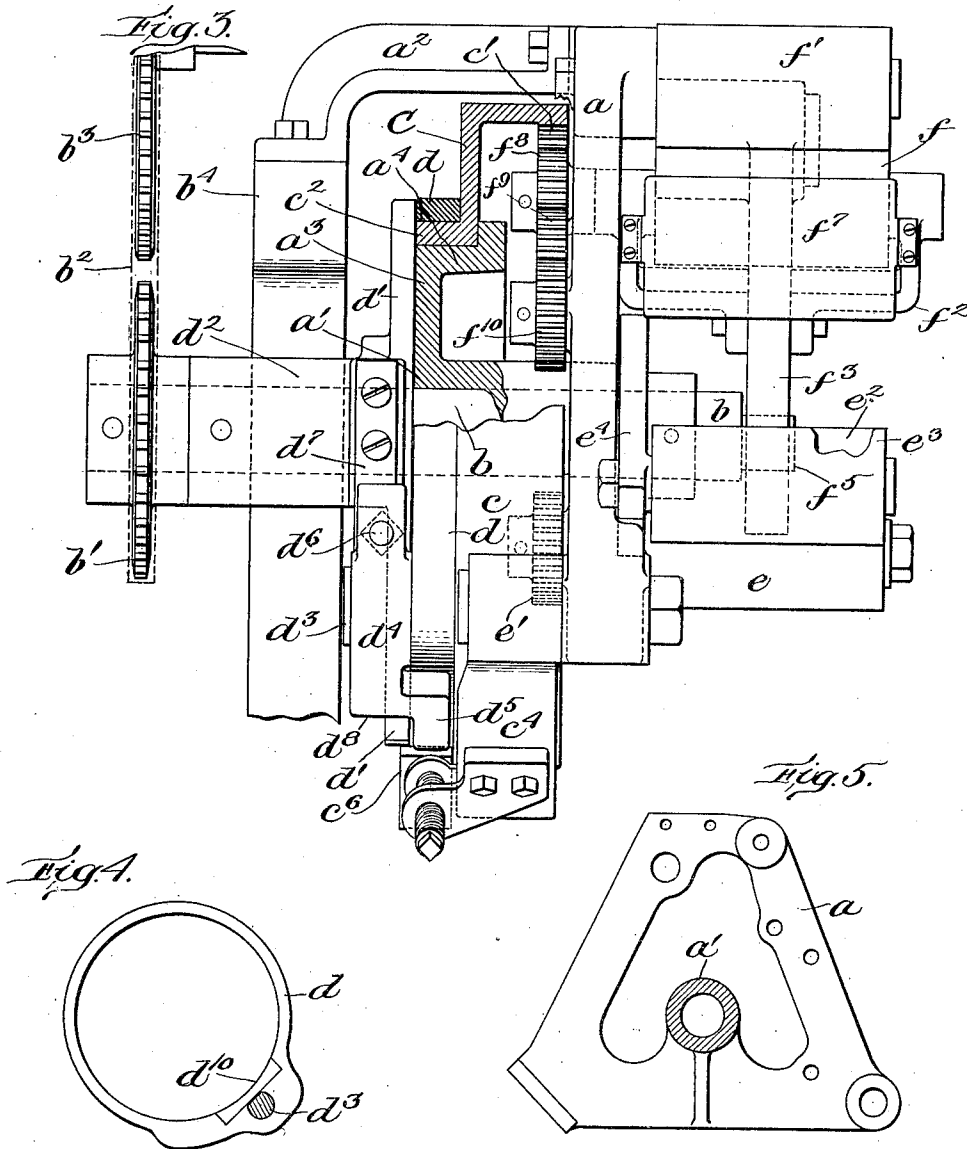
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3 SHEETS—SHEET 2.



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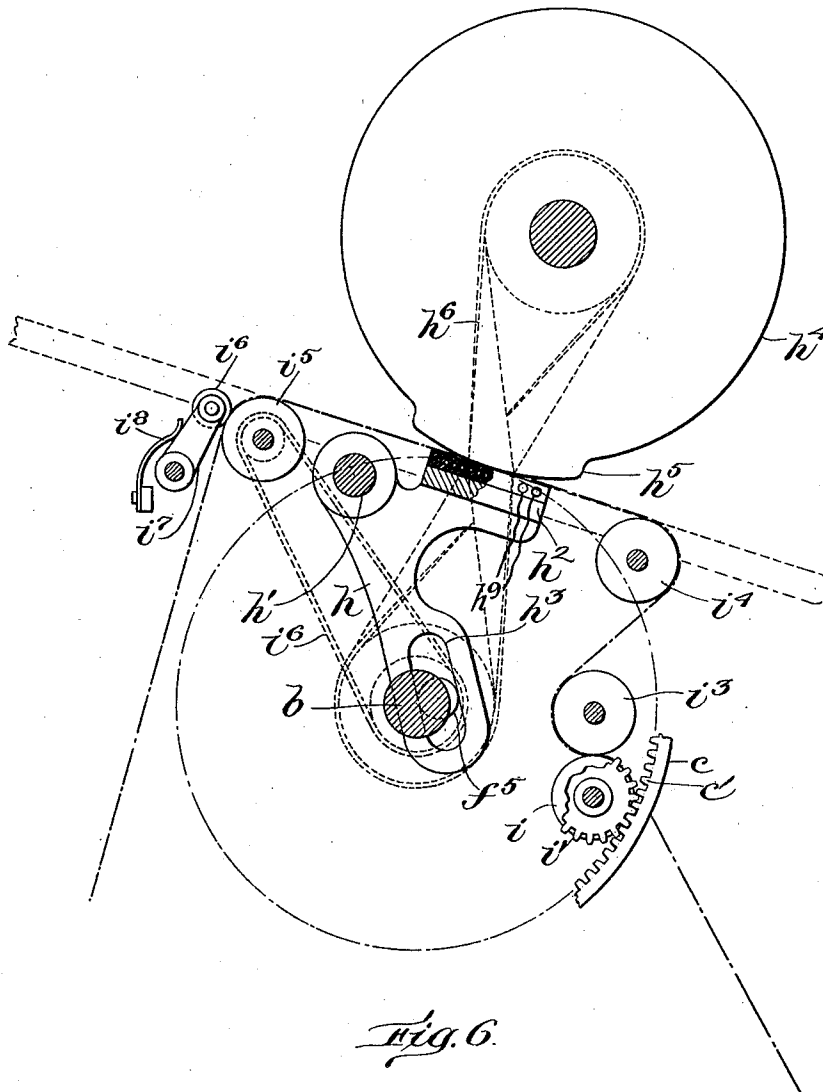


Fig. 6.

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UNITED STATES PATENT OFFICE.

CHARLES G. RICHARDSON, OF SPRINGFIELD, VERMONT.

DEVICE FOR APPLYING TRANSFER-STAMPS.

1,086,402.

Specification of Letters Patent.

Patented Feb. 10, 1914.

Application filed February 11, 1911. Serial No. 608,057.

To all whom it may concern:

Be it known that I, CHARLES G. RICHARDSON, citizen of the United States, and resident of Springfield, Vermont, have invented certain new and useful Improvements in Devices for Applying Transfer-Stamps, of which the following is a specification.

This invention relates to the art of applying transfer stamps commonly known as decalcomania stamps to various kinds of fabrics and is intended to provide a convenient device for automatically transferring such stamps to the fabric while the fabric is being passed through some finishing machine, such for example as a cloth measuring machine. In this case the device is shown applied to the frame-work of a cloth measuring machine adjacent to the table over which the cloth is fed to the measuring roll.

In its essential features the device comprises a mechanism for feeding the tape which carries the transfer stamps to be applied to the cloth and coöperating pressing means which are so coördinated with the tape feeding mechanism as to transfer each stamp successively to predetermined portions of the fabric, after the respective stamps have been fed into proper relationship to the fabric.

In the device illustrated in the accompanying drawings, the tape bearing the series of transfer stamps is fed between the pressing or transfer members in the same direction as the travel of the cloth by an intermittent feed to which is coördinated the movement of the pressing or transfer members.

In its general features the device comprises coöperating rolls between which the transfer tape and the cloth are fed or advanced, one of said rolls being heated and being made movable toward and away from the other roll, so as to intermittently press the tape against the cloth under proper conditions to transfer the same to the cloth.

In the accompanying drawings Figure 1 is an end elevation partly in section of the device constructed in accordance with the principles of this invention applied to a table of a cloth measuring machine. Fig. 2 is a diagrammatic view showing the tape feed rolls and the presser rolls in their operative relationship to each other. Fig. 3 is a front elevation of the device partly in section and partly broken away to show por-

tions of the interior parts. Fig. 4 is a detail end elevation showing the continuously rotating ring by which the mechanism for feeding the tape and moving the heated presser is intermittently actuated. Fig. 5 is an end elevation of the main frame of the device by which the moving parts and the shaft are supported. Fig. 6 is an end elevation showing the principal parts of a modified form of the invention in their operative relationship.

In the practice of my invention according to the form illustrated in the drawings I employ a central supporting frame or casting *a* which is provided with a central bearing or journal at *a'* to receive the main shaft *b* which shaft is continuously driven by the sprocket wheel *b'* pinned to the outer end, either of which may receive its rotation by means of a sprocket chain *b²* passing over a sprocket wheel *b³* on the main shaft of the measuring machine. This frame is rigidly secured to a suitable portion of the end frame *b⁴* of a cloth measuring machine or other machine to which it may be applied by means of a bracket *a²*. At one end the central boss or hub *a'* of the frame *a* is provided with a radial web *a³* carrying a cylindrical flange *a⁴* which forms the bearing for an intermittently rotated hollow gear *c* provided with an internal gear ring *c'*. Said gear *c* has its bearing in an annular groove or seat formed in the periphery of the flange *a⁴* at its end. The hollow gear *c* has a projecting annular flange *c²* which forms a bearing for a continuously rotating ring *d* which is loosely mounted on said annular flange *c²* and which receives its rotation from an arm *d'* whose hub *d²* is pinned to the shaft *b*, so that the arm *d'* revolves continuously with the rotating shaft *b*. The ends of arm *d'* overlap the ring *d* and prevent it from slipping laterally off the bearing-flange which supports it.

I will now describe the driving connection between the arm *d'* and the ring *d*. As shown in Fig. 1 the ring *d* is provided with a pin or stud *d³* upon which is clamped a split hub member *d⁴* of a quadrant shaped arm *d⁵*, the jaws of said split hub being drawn together by a bolt *d⁶* so as to firmly grip said pin or stud *d³*. The arm *d'* is provided on its forward side with a flat spring metal arm or finger *d⁷* whose free end engages the hub *d⁴* at its rear side, so that as the arm *d'* revolves the spring *d⁷*

pushes with a yielding pressure against this hub d^4 thereby causing the ring d to rotate in a contra-clockwise direction on the flange c^2 by which said ring is loosely carried. The arm d^5 is provided with an offset or shoulder d^8 so disposed as to be engaged by the end of the arm d' when the spring d^7 is flattened or straightened out against the forward face of said arm d' .

The gear c is normally held against rotation by means of a pivoted brake arm c^4 which is normally pressed into clamping or gripping contact with the periphery of the gear c outside of its internal gear ring c' . The brake arm c^4 is pressed normally against the periphery of said gear ring into operative position by means of a spring c^{20} which is fastened to an appropriate portion of the main frame a as shown in Fig. 1. At its free end the brake arm c^4 is provided with a cam plate c^6 adjustable by means of screw c^{10} and which is arranged to be engaged by a projecting cam plate d^9 formed on or carried by the arm or lever d^5 . Obviously when in the course of the rotation of the ring d and of the arm d^5 carried thereby the cam plate d^9 comes into contact with the cooperating cam plate c^6 on the brake arm c^4 , the latter will be forced out away from contact with the periphery of the gear ring c' , so that said gear ring will be left free to rotate. The intermittent rotation of the gear c , c' is effected by a connection between said gear and the continuously rotating ring d , which I will now describe.

Mounted in a recess or pocket formed in the interior face of the ring d is a loose block or clutch member d^{10} , which is capable of being forced into gripping contact with the annular flange c^2 which forms the bearing for the ring d so as to cause said flange c^2 and consequently the gear c , c' which is integral therewith to rotate in unison with the ring d . This clutch block or gripping member is moved into clamping position by means of the pin or stud d^3 , the side of which adjacent to the gripping member d^{10} is cut away to leave a flat or eccentric surface. Obviously the rocking of this pin or stud d^3 about its axis serves to disturb the parallelism between the outside flat face forming the back of the gripping member d^{10} and the flat face of the pin and acts to force the clutch or gripping member d^{10} into frictional engagement or gripping engagement with the periphery of the flange portion c^2 of the gear c . The rocking of the pin d^3 is accomplished by the inward movement of the free end of the arm d^5 which is produced when the cam plate d^9 rides over the cam plate c^6 of the brake, there being both an outward movement of the brake to render it inoperative and an inward movement of the arm or lever d^5 as a result of the con-

tact between these two cam members. After the cam plate d^9 has passed by cam plate c^6 the spring d^7 tends to return the clutch lever d^5 to its normal position thereby releasing the clutch member or block d^{10} , while of course the spring c^{20} tends to retract the brake c^4 to its normal operative position to stop the rotation of the gear c .

The tape feeding mechanism comprises a roll e which is intermittently rotated by the gear c' through the medium of a spur gear e' mounted on the shaft of the roll e . Two idler rolls e^2 and e^3 are mounted on the swinging arm or lever e^4 in position to press upon or contact with opposite sides of the roll e . The tape is passed from any conveniently placed reel between the rolls e , e^3 by which it is pinched and fed thence around the movable presser or transfer roll f and is then carried back between rolls e , e^2 so that roll e acts to feed one portion of the tape forward and the transfer mechanism to pull or lead back the used portion of the tape after it has passed by the transfer roll.

The mechanism for transferring the stamps from the tape to the fabric comprises essentially the heated roll f and the cooperating roll f' which is carried by a fixed stud or journal which projects over a longitudinal slot in the table a^{10} in position to sustain the upward pressure of the heated roll f which is intermittently brought into contact with the cloth and tape from beneath the table and which presses them against the idler roll f' . As it is preferred to bring the presser roll f into operative relationship or contact with the cloth and tape only for a sufficient length of time to transfer the interposed stamp to the cloth at the particular desired point on the cloth, say in this case at intervals of one yard along its edge, I provide mechanism for affecting this intermittent movement of the roll f toward and away from the cloth. To that end the shaft of the roll f is mounted in end brackets f^2 which are secured to the swinging arm f^3 which is pivoted at f^4 . This arm is oscillated about the center f^4 by means of a wrist pin or crank pin f^5 secured eccentrically to the shaft b and which passes through an elongated slot f^6 formed in the free or swinging end of the arm f^3 . I have shown secured to the brackets f^2 a shield or guide f^7 comprising a curved plate as shown in Fig. 2 which follows the contour of the roll f a little distance from its periphery and serves as a guide to direct the tape around the roll f so as to increase the area of contact between the tape and the roll f . In order that the roll f may rotate while it is in contact with the traveling cloth and the tape, I have secured to one end of this shaft a spur gear f^8 which meshes with the intermediate gear f^9 carried by the frame a which in turn is driven by a spur gear f^{10}

which is engaged and driven by the intermittently rotatable internal gear c^1 , this train of gearing maintains a continuous driving connection between the presser roll f and the driving gear c' substantially unaffected by the swinging movement of the roll f into and out of contact with the cloth.

As would be understood from the foregoing the intermittent rotation of the presser roll or member f and the intermittent feed of the tape bearing the transfer stamps is accomplished by the same driving member, namely the gear ring c' . This insures the feeding forward of the tape at the same time that the roll is rotating in contact with the cloth so that the tape and the cloth to be marked and the heated roll may all travel with the same surface speed during the interval that they are in operative contact or relationship. The position of the crank pin f^5 is such as to cause the lever f^3 to maintain the roll f in contact with the cloth and the tape at the time that the internal gear c' is being rotated.

In Fig. 6 I have illustrated a modified form of the invention in which I employ a heated non-rotating plate instead of the rotating roll f , the cooperating parts being modified to some extent to meet this change in the pressing or transfer member. In this form of the invention the swinging arm h is pivoted to swing about the center h' and has an extension supporting the electrically heated presser plate h^2 to which current is supplied by wires h^9 . This arm is provided with an elongated slot h^3 which receives the eccentric or crank pin f^5 mounted on the shaft b , so that with each revolution of the shaft the presser is moved toward and away from the cloth. The cooperating presser or transfer member h^4 consists of a roll which has for a small arc of its circumference a projecting concentric presser portion h^5 , so that upon each complete rotation of the roll h^4 the pressing portion h^5 passes once in contact with the cloth, the size and surface speed of said rolls h^4 and h^5 being preferably such as to equal the surface speed of the cloth traveling over the table beneath it. Said roll h^4 is positively driven by the belt h^6 which transmits motion from the main shaft b . In this case the tape feeding roll i is driven by means of the gear i' meshing with the gear ring c' which is driven in the manner already described in relation to Fig. 1. A cooperating feed roll i^3 serves to pinch the tape against the roll i and from the pinching of these two rolls the tape is led over the idler roll i^4 whence it travels across the top of the heated presser h^2 around the take-up roll i^5 which is driven by the belt i^6 from the main shaft the grip or feed of said roll i^5 being maintained by a light presser roll i^6 mounted on the swinging arm i^7 which is normally pressed toward

the roll i^5 by the spring i^8 . This roll i^5 is rotated continuously but its contact grip on the tape is so light that it will not tear the tape when the tape is held against travel or movement. The feeding rolls i , i^3 control the feed of the tape by their intermittent rotation derived from the internal gear c' while the roll i^5 serves to keep the tape taut throughout the whole operation.

What I claim is:—

1. A machine for automatically applying transfer stamps embracing in combination with a support over which the fabric to be stamped is caused to travel, an intermittently movable heated member by which the individual stamps of a series are successively brought into contact with said fabric to hot press the stamp on the fabric, and means for causing the stamp to be fed along with the fabric while it is pressed against the fabric, substantially as described.

2. A stamp transferring machine embracing in its construction means for supporting a traveling web of fabric, a stamp-bearing tape movable into and out of contact with said fabric, means for intermittently feeding said tape to bring the stamps successively into proper relationship to different portions of the traveling fabric, and a heated member for hot pressing the stamps against the fabric, substantially as described.

3. The combination of the fabric supporting table over which the fabric is continuously fed, an intermittently movable stamp-bearing tape, a heated presser for hot pressing the stamp and the fabric together in order to transfer the stamp to the fabric, means for intermittently feeding the tape between the presser and the fabric, said tape feeding means being operative while the stamp is pressed against the fabric so that the fabric and the stamp may travel together while being pressed, substantially as described.

4. The combination with the fabric supporting table over which the fabric is caused to travel, a heated roll, means for causing said roll to move into and out of contact with the fabric, a stamp-bearing tape, mechanism for causing said tape to travel intermittently between the roll and the fabric, said tape feeding mechanism and said roll actuating mechanism being coordinated to cause the tape to be fed forward while the roll presses the stamp thereon against the fabric, substantially as described.

5. The combination of means for continuously feeding a web of fabric to be stamped, opposing presser members one of which is heated, means for intermittently feeding a series of transfer stamps into contact with said fabric and between the presser members, means for swinging one presser member toward the other to hot press the stamp against the fabric, substantially as described.

6. In a machine for transferring stamps the combination of the heated presser, a swinging support therefor, a cooperating opposed rotating member, means for intermittently feeding in succession a series of stamps between said presser members into contact with the fabric to be stamped, and means for intermittently actuating said swinging support in order to press the heated roll against the interposed stamp and the fabric, substantially as described.

7. The combination of the opposed presser members one of which is heated, means for intermittently moving the heated member toward and away from its opposed member, tape feeding mechanism, an intermittently rotated ring said ring having connection with the tape feeding mechanism and the movable presser member to simultaneously actuate the presser member and the feed mechanism in order to press the tape against a web of cloth traveling between the presser members, substantially as described.

8. The combination of the transfer mechanism embracing two opposed members one of which is heated, a tape feeding mechanism for feeding a stamp-bearing tape between said presser members, a rotatable shaft and means actuated intermittently by said shaft to press the tape and an interposed web of cloth together between the presser members and to feed the tape forward at predetermined intervals at each revolution of the actuating shaft, substantially as described.

9. The combination of a constantly rotating driving member, an intermittently rotated gear ring, stamp feeding mechanism and presser mechanism for pressing the stamps against the fabric to be stamped, said gear ring having actuating connections with the presser members to rotate the same with the stamp feeding mechanism, and means for intermittently locking the driving gear to the driving member in order to

cause the rotation of the presser and the feeding of the stamps at predetermined intervals, substantially as described.

10. The combination of the opposed presser members, one of which is heated, means for automatically moving one presser member against the other at predetermined intervals, means for continuously feeding a web of cloth between the presser members, and means for intermittently feeding a stamp carrying tape in contact with the cloth between said presser members and in the direction of the movement of the cloth, substantially as described.

11. In a machine for transferring stamps the combination of opposed presser members one of which is movable toward the other, means for guiding the fabric to be stamped between said presser members, means for presenting in succession a series of stamps to the fabric between the presser members, and means for automatically moving one presser member toward the other to impress the stamps upon the fabric, substantially as described.

12. In a machine for applying transfer stamps to fabric the combination of opposed presser members, means for continuously feeding a web of fabric to be marked between said presser members, means for feeding successively at predetermined intervals, a series of transfer stamps into contact with that portion of the fabric upon which the presser members are coordinated to act, and cooperating means for causing said presser members to press the successive transfer stamps against the fabric and to transfer the stamp thereto, substantially as described.

In witness whereof, I have subscribed the above specification.

CHARLES G. RICHARDSON.

In the presence of—

ANNIE BEATRICE BURKE,
BLANCHE L. NORTON.