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F. J. WALTER

HOLLOW PUNCH

Filed July 27, 1927

FIG. 1.

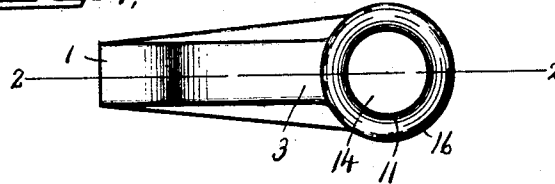


FIG. 2.

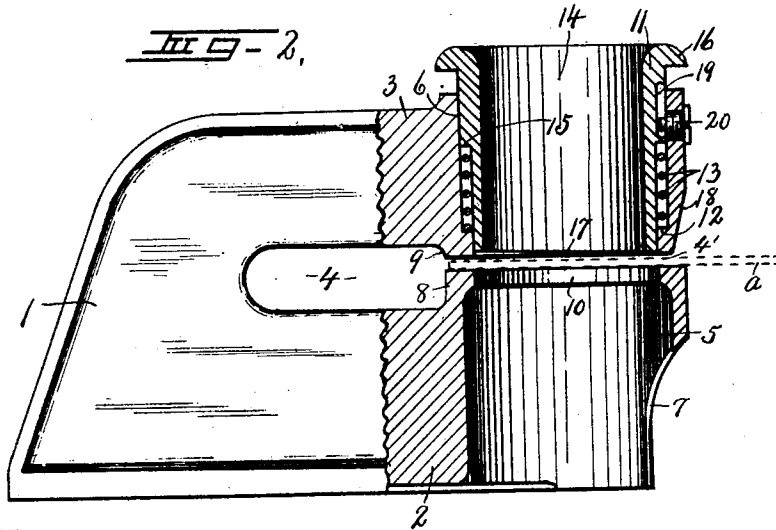


FIG. 3.

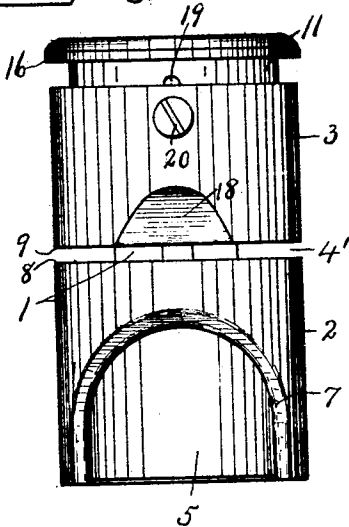
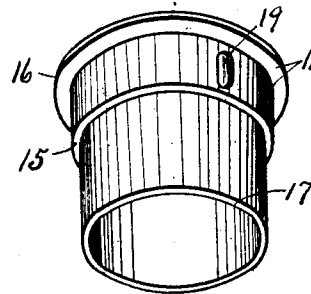


FIG. 4.



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HOLLOW PUNCH.

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This invention relates to a punch adapted to be used more particularly for cutting the photographs of licensed chauffeurs from photographic cards preparatory to attaching the same to the chauffeur's license as required for taxicab operators, but obviously may be used for many other purposes where visibility of the portion of the card to be cut out is necessary.

In the preparation of these licenses it is customary to make relatively small photographs of the facial expressions of the licensee to be attached to the license and the main object of the present invention is to provide a simple and comparatively inexpensive device for punching out the portion of the photographic card bearing the facial expressions of the licensee in such manner that the main features may be centrally located upon the cut-out portion of the card by making the male punch tubular so that the portion of the card to be cut-out may be visibly and accurately registered with the opening through the punch.

Another object is to provide a hollow lower die with an opening in one side thereof through which the cut-out portion of the card may be withdrawn.

Other objects and uses relating to specific parts of the device will be brought out in the following description.

In the drawings:—

Figure 1 is a top plan of my improved punch on a reduced scale.

Figure 2 is an enlarged side elevation, partly in section, in the plane of line 2—2, Figure 1.

Figure 3 is a front face view of the device shown in Figure 2.

Figure 4 is a perspective view of the detached tubular plunger.

As illustrated, this device comprises a one-piece U-shaped frame —1— preferably of cast iron or equivalent material forming lower and upper arms —2— and —3— and an intervening horizontal slot —4—, both arms being disposed in substantially horizontal planes.

The lower face of the frame —1— is substantially flat and adapted to rest upon a bench or other available support, but obviously may be clamped in a vise, if desired.

The front ends of the arms —2— and —3— are mainly cylindrical in top plan and provided with co-axial cylindrical openings —5— and —6— therethrough from top to bottom, the lower portion of the front end of the arm —2— being cut away to form an opening —7— to communicate with the adjacent portion of the cylindrical opening and allow the cut-away portions of the cards to be withdrawn by hand therethrough.

The adjacent sides of the cylindrical portions of the arms —2— and —3— are provided with cylindrical bosses —8— and —9— having substantially flat parallel faces in spaced relation to form a guide opening —4'— between them for receiving and guiding the card to be punched between the lower and upper dies, presently described, the guide opening —4'— forming an extension of the opening —4— but of less vertical depth than the remaining portions of the opening at the rear of the bosses —8— and —9—.

A relatively small axial length of the upper portion of the opening —5— is reduced in diameter to form a cylindrical die —10— having its peripheral wall co-axial with the opening —5— and more or less hardened to form a cutting or shearing edge adapted to cooperate with the punching die, presently described, for removing the desired portion of the card when the punching die is depressed.

A relatively small axial length of the lower portion of the opening —6— in the upper arm —3— is reduced to about the same diameter as the peripheral wall of the female die —10— to form a guide for the lower end of a tubular punching die —11— and also forming an annular shoulder —12— for supporting the lower end of a coiled spring —13— which surrounds the intermediate portion of the outer periphery of the plunger —11— for normally elevating the same.

As previously stated the male die or vertically reciprocating plunger —11— is cylindrical and tubular and is provided with a co-axial cylindrical opening —14— therethrough from end to end of slightly less diameter than the diameter of the lower female die —10— to afford greater visibility of the portion of the card as —a— which is inserted in the guide slot —4'— thus per-

mitting an accurate registration of the portion of the card which is to be cut away with the openings through both of the dies.

The external diameter of the lower portion of the plunger —11— between the shoulder —12— and upper face of the arm —3— is reduced to substantially the same diameter as the lower reduced end of the opening —6— to form an annular shoulder —15— against which the upper end of the coiled spring —13— is adapted to rest.

The extreme upper end of the plunger —11— above the upper face of the arm —3— is provided with an outwardly projecting annular flange —16— adapted to cooperate with the underlying upper face of the arm —3— for limiting the downward movement of the plunger, the upper face of the plunger being disposed mainly in a horizontal plane at right angles to the axis thereof and rounded at its outer edges to be engaged by pressure of the hand thereon for depressing said plunger into cooperative cutting engagement with the lower die —10— for removing the aligned portion of the card —a—.

The peripheral portion of the plunger —11— between the shoulder —15— and annular flange —16— is cylindrical and of substantially the same diameter as the opening —6— in the upper portion of the arm —3— for guiding the plunger in its axial movement.

The lower face —17— of the plunger —11— adjacent the die —10— is disposed in a plane diagonal to the axis of the plunger or at a slight angle to its direction of movement so that one portion thereof, in this instance the front portion, will be lower than the remaining portions to constitute a shearing edge adapted to cooperate with the inner periphery of the die —10— for severing the registering of the card —a— when the plunger die —11— is depressed into the lower die —10—.

The front face of the lower portion of the arm —3— is slightly cut away by beveling at —18— beyond the corresponding face of the lower arm —2— so that the upper face of the front portion of the arm —2— constitutes a ledge or feed across which the card —a— may be fed by hand when inserting it into the slot —4— and between the dies —10— and —11—.

The front face of the die —11— below the flange —16— is provided with a lengthwise slot —19— while the corresponding portion of the arm —3— is provided with a screw —20— normally projecting into the slot —19— and adapted to engage the entire walls thereof for limiting the reciprocal movement of the plunger —11—.

It is evident from the foregoing description that the screw —20— may be withdrawn out of the path of movement of the adjacent sides of the plunger —11— to per-

mit the insertion and removal of said plunger into and out of the opening —6— in the arm —3—.

Operation.

The photographic card as —a— bearing the facial photograph of a licensed driver of motor vehicles is inserted in the slot —4— between the adjacent ends of the dies —10— and —11— until the part of the photograph to be cut out is visible through the opening —14— and correctly registered with said opening as determined visually by the operator through said opening whereupon the plunger —11— is depressed by hand with sufficient force to punch out the registering portion of the card and allow it to drop to the bottom of the opening —5— from which it may be removed by hand through the opening —7—.

Immediately upon the release of the hand from engagement with the plunger —11— the latter will be returned to its normal upposition by the spring —13— until limited by the stop pin —20—.

These operations may be repeated indefinitely upon different portions of the same card or upon different cards bearing the pictures of the licenses.

This machine is particularly simple, expeditious and efficient but obviously may be varied as to form and size of the dies so long as the upper and lower dies are provided with registering openings, one for the reception of the detached part of the card and the other as a sight opening through which the operation of the card to be cut-out may be correctly registered.

What I claim is:—

1. In a card punching machine of the character described, a bifurcated frame having opposed arms provided with registering openings therethrough, one of the arms being provided with a relatively fixed die, an additional die reciprocally movable in the other opening to cooperate with the first-named die for punching an interposed portion of the card and provided with a sight opening therethrough from end to end.

2. In a card punching machine of the character described, a bifurcated frame having opposed arms provided with registering openings therethrough, one of the arms being provided with a relatively fixed die, an additional die reciprocally movable in the other opening to cooperate with the first-named die for punching an interposed portion of the card and provided with a sight opening therethrough from end to end, and having its end adjacent the fixed die disposed in a plane diagonal to the axis thereof.

3. In a card punching machine of the character described, a bifurcated frame having opposed arms provided with registering

openings therethrough, one of the arms being provided with a relatively fixed die, an additional die reciprocally movable in the other opening to cooperate with the first-named die for punching an interposed portion of the card and provided with a sight opening therethrough from end to end, said movable die being adapted to be operated by hand toward the fixed die, and a spring for returning the movable die.

4. In a card punching machine of the character described, a bifurcated frame having opposed arms provided with registering openings therethrough, one of the arms being provided with a relatively fixed die, an additional die reciprocally movable in the other opening to cooperate with the first-named die for punching an interposed portion of the card and provided with a sight opening therethrough from end to end, said movable die being adapted to be operated

by hand toward the fixed die, and a spring for returning the movable die, and means for limiting the endwise movement of the movable die.

5. In a punch of the character described, a bifurcated frame forming lower and upper arms and a guide slot between them, the lower arm being provided with a fixed die in its upper end and an axially extending opening below the fixed die and provided with a branch opening through the peripheral wall thereof, a tubular die reciprocally movable in an opening in the upper arm in alinement with the lower die and adapted to be depressed by hand into cutting co-action with the fixed die, said tubular die having its lower face disposed in a plane at an angle to its axis to form a shearing edge.

In witness whereof I have hereunto set my hand this 22nd day of July, 1927.

FRANK J. WALTER.