Oct. 4, 1932. E. J. BAUMÉ 1,880,675

LOCK

Filed Feb. 9, 1931 2 Sheets-Sheet 1

Fig. 1

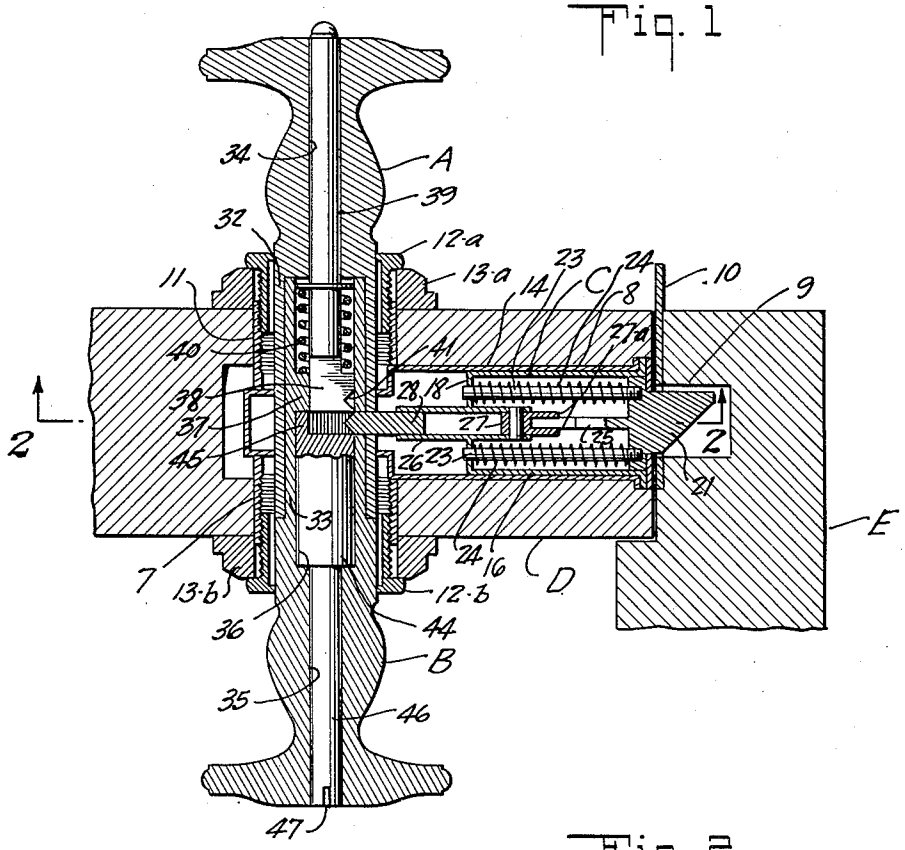
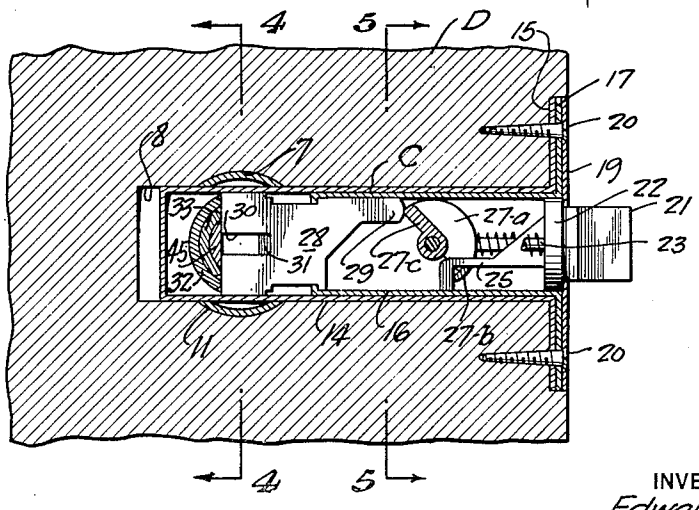


Fig. 2



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LOCK

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Fig. 5

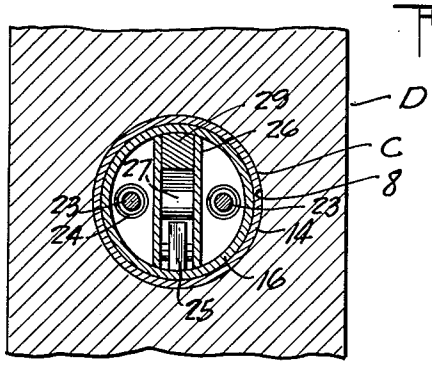
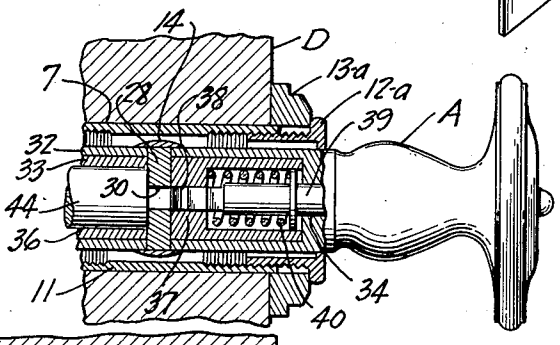
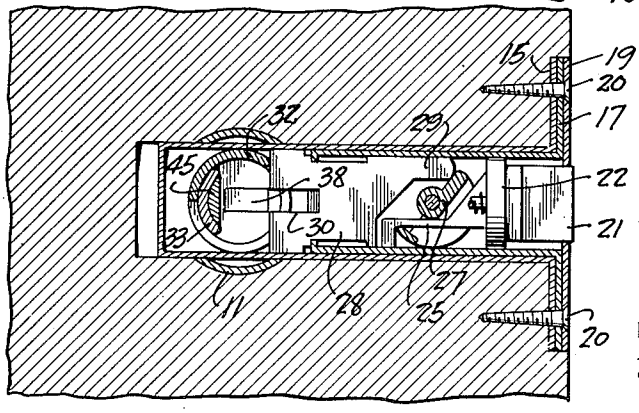


Fig. 3

Fig. 4

Fig. 6





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Patented Oct. 4, 1932

1,880,675

UNITED STATES PATENT OFFICE

EDWALL JAMES RAUMÉ, OF SANTA MONICA, CALIFORNIA

LOCK

Application filed February 9, 1931. Serial No. 514,537.

This invention relates to a door latch and lock, and pertains to a structure having a latch operable from an oscillatable knob shaft.

The objects of this invention are to provide a latch structure having any or all of the following features: two independently oscillatable knobs, a latch operator actuable by oscillation of either knob, said stem holding the knob shaft assembled; means to lock said operator controllable for actuation through one knob and releasable from either knob; and a latch stem and latch coupled together by a reversing movement.

These objects together with other objects and corresponding accomplishments are obtained by means of the embodiment of the invention illustrated in the accompanying drawings, in which:—

Fig. 1 is a longitudinal section of the lock in a door with the latch protracted; Fig. 2 is a section as seen on the line 2—2 of Fig. 1; Fig. 3 is a perspective view of the knobs, shanks and latch operator parts in position to be assembled; Figs. 4 and 5 are sections as seen on lines correspondingly numbered in Fig. 2; Fig. 6 is a section similar to Fig. 2 showing the operator with the latch retracted.

Referring with more particularity to the drawings, A denotes an inside knob and B an outside knob, both having knob shanks which when assembled constitute a knob shaft. The latch operator assembly is marked C. The knob and latch operator assembly is mounted in a door D, and the latch keeper in a door frame E. As assembled, the door is provided with a transverse bore 7 and an intersecting bore 8 extending from the door jamb. The bores may be round and drilled by augers. In the door frame E and in alinement with bore 8, when the door is closed, is a recess 9 covered by a keeper plate 10 to receive the latch. The knob shaft is mounted in bore 7 and the operator assembly in bore 8.

Mounted in bore 7 is a tubular casing 11, cut away at the mid section to provide diametrically opposite openings for accommodation of the set-back or guide casing. Casing 11 is internally threaded at opposite ends to receive nuts 12*a* and 12*b* having outturned flanges to hold rosettes 13*a* and 13*b* in place, and, thus, secure the casing 11 in position without the aid of screws or like means which may mar the door.

The latch operator mechanism is housed in a set-back casing 14 having diametrically opposite openings adjacent the inner end of the shell to aline with the bore of casing 11 and to receive the knob shanks. Casing 14 has a flange at its outer end, the flange being rectangular to provide a plate 15.

A guide shell 16 fits telescopically within the set-back casing 14 and has a plate 17 corresponding to plate 15. The inner end of shell 16 has a wall 18 to serve as seats for springs. The selvage plate 19 corresponding to plates 15 and 17 is countersunk in the edge of the door, the plates having registering openings for attachment of the parts by means of screws 20. The selvage plate has an opening alining with the bore of shell 16 to accommodate a latch bolt 21 and to hold the latter against displacement. The latch bolt has a collar 22 slidingly fitting within the bore of shell 16. The pins 23 extend rearwardly from the bolt 21 and are guided in openings formed in wall 18. Compression springs 24 embrace pins 23 and tend to hold the latch bolt in its protracted position. Extending through the rear wall of the guide shell are walls forming a guideway 26. The outer end of the guide chamber has pivotally mounted therein a rocker 27. The rocker 27 has spaced segments 27*a* joined by a bridle 27*b* which underhangs yoke 25. A bridge 27*c* joining the segments 27*a* serves as a contact for a finger 29 on a latch stem 28. By rocking the bridge 27*c* forwardly, the latch bolt will be retracted against the springs 24, as illustrated in Fig. 6. The latch stem extends into the tubular casing 11. It has an elongated slot 30 with a tooth 31 in its forward wall. Obviously, the springs 24 tend to maintain the latch in protracted position and the latch stem in retracted position. The rocker forms a reversing coupling between the latch stem and latch bolt.

The knob shaft comprises shanks 32 and 33 nested within one another, and, when in

assembled relation, the shanks 32 form an outer shell completely covering the nested portion of shank 33. The shanks embracing the knob are journalled in the rosettes 12*a* 12*b*. The shanks are provided with cylindrical bores 34 and 35 at their knob ends. Shank 33 has an enlarged bore 36 forming a continuation of bore 35 and at an intermediate portion is a bridge 37 having an elongated slot to slidably receive the head 38 of a lock dog 39. A collar is formed on the pin end of lock dog 39 and serves as a seat for spring 40 tending to hold the lock dog with its head out of the latch operator stem slot 30 and with the end of the lock dog projected beyond the knob A. The head of the lock dog is provided with a recess 41 corresponding to the tooth 31 with which it is designed to coact. A cut-out 42 is provided in shank 32 and a cut-out 43 in shank 33, these cut-outs registering when the shanks are assembled and the rear walls of the cut-outs serving as roll-outs to engage the head of the latch stem operator so that by oscillating either knob in either direction, the latch stem will be pushed into protracted position. In the position of the parts shown in Fig. 1, the lock dog is retracted from the slot 30. However, if the lock dog is projected into the slot 30, knob B cannot be oscillated, but knob A can be oscillated, and will cause the roll-out 42 to push the latch operator stem and thereby release the dog, and the latter will be retracted by the spring 40. Disposed within the bore 36 is a plug 44 having a roll-out 45 engaging the head of latch operator stem 28 and capable of pushing the latch operator stem outwardly so as to release the dog head 38. The plug 44 is provided with a stem 46 pivotally mounted in the bore 35 and shown with an end having a kerf 47 for engagement with a screw driver or the like so that the plug may be rotated. It is obvious, that any suitable type of lock might be installed in the knob B and connected to the stem 35 so as to be operated by a key. However, for the purpose of simplicity of disclosure, such a lock has not been shown. If it is desired to lock the door, stem 39 is pushed inwardly at the knob A, thereby causing the dog to enter slot 30 and the tooth 31 and recess 41 will act as a detent to yieldably hold the dog in its locking position. Thus, a lock is provided. This lock may be released by oscillating knob A, but cannot be released by oscillating knob B. However, the lock may be released by oscillating stem 46 from the outside.

In the installation of the lock, the door D is bored transversely, as indicated by 7, the bore being located at substantially the correct distance from the edge of the door. The bore 8 is then drilled from the edge so that it intersects and extends through the bore 6. The opening 8 is then countersunk at the door edge so that the selvage plate 19 will be flush therewith.

The casing 11 is then placed in position with the rosettes 13*a* and 13*b* and the rosette nuts 12*a* and 12*b* in place and the latter tightened so as to hold the rosettes against the door and clamp the casing 11 in position. The set-back casing 14 is then inserted in bore 8, the knob shanks being inserted from opposite sides, the dog being in place. The guide shell assembled with the latch bolt parts is then placed within the set-back shell and the head of the latch bolt operator 10 disposed within the cut-outs on the knob shank. The selvage plate 19 is then placed in position and the parts secured in the door by means of the screws 20. The latch bolt stem holds the knobs in assembled relation in the door. The latch bolt 21 may be projected by oscillating either knob A or knob B. To lock the latch, the dog stem 39 is pressed inwardly and will engage the head of the latch bolt stem, snapping into position. However, oscillation of knob A will release the dog, but knob B cannot be turned on the outside. To release the latch stem from the outside, the stem 46 of the roll-out plug is turned. Obviously, I have provided an easily assembled and disassembled structure, which is compact and economical to manufacture. No marring or mutilation of the door is necessary for the installation of the lock.

What I claim is:—

1. A door latch comprising a divided oscillatable knob shaft having independently turnable shanks nested within one another with door knobs on the shanks, said shanks having registerable cut-outs in their walls and a roll-out, a latch operator stem mounted to be reciprocable to and from said knob shaft and operable by said roll-out, said operator stem having a head extending into said cut-outs and locking said shanks in assembled relation, resilient means yieldably holding said stem with its head in said cut-outs, said head having a keeper slot located to be within said shanks when in retracted position, a lock dog non-rotatable mounted in one of said shanks for axial movement and projectable into said slot to hold the shank against turning and thereby to hold said stem against protraction, said lock dog being manually operable from a door knob.

2. A door latch comprising a divided oscillatable knob shaft having independently turnable shanks nested within one another with door knobs on the shanks, said shanks having registerable cut-outs in their walls and a roll-out, a latch operator stem mounted to be reciprocable to and from said knob shaft and operable by said roll-out, a guide casing for said stem having detachable means to hold said stem in assembled relation with said shaft, said operator stem having a head

extending into said cut-outs and locking said shanks in assembled relation, resilient means yieldably holding said stem with its head in said cut-outs, said head having a keeper slot located to be within said shanks when in retracted position, a lock dog non-rotatable mounted in one of said shanks for axial movement and projectable into said slot to hold the shank against turning and thereby to hold said stem against protraction, said lock dog being manually operable from a door knob.

3. A door latch comprising a divided oscillatable knob shaft having independently turnable shanks nested within one another with door knobs on the shanks, said shanks having registerable cut-outs in their walls and a roll-out, a latch operator stem mounted to be reciprocable to and from said knob shaft and operable by said roll-out, said operator stem having a head extending into said cut-outs and locking said shanks in assembled relation, resilient means yieldably holding said stem with its head in said cut-outs, said head having a keeper slot located to be within said shanks when in retracted position, a lock dog non-rotatable mounted in one of said shanks for axial projection into said slot to hold the shank against turning and thereby to hold said stem against protraction and having an inclined surface for coaction with a wall of said slot to yieldably hold the dog within said head, resilient means tending to retract said dog from said slot and being manually operable from a door knob to project said dog into said slot.

4. A door latch comprising a divided oscillatable knob shaft having independently turnable shanks nested within one another with door knobs on the shanks, said shanks having registerable cut-outs in their walls and a roll-out, a latch operator stem mounted to be reciprocable to and from said knob shaft and operable by said roll-out, a guide casing for said stem having detachable means to hold said stem in assembled relation with said shaft, said operator stem having a head extending into said cut-outs and locking said shanks in assembled relation, resilient means yieldably holding said stem with its head in said cut-outs, said head having a keeper slot located to be within said shanks when in retracted position, a lock dog non-rotatable mounted in one of said shanks for axial projection into said slot to hold the shank against turning and thereby to hold said stem against protraction and having an inclined surface for coaction with a wall of said slot to yieldably hold the dog within said head, resilient means tending to retract said dog from said slot and being manually operable from a door knob to project said dog into said slot.

5. A door latch comprising a divided oscillatable knob shaft having independently turnable shanks nested within one another with door knobs on the shanks, said shanks having registerable cut-outs in their walls and a roll-out, a latch operator stem mounted to be reciprocable to and from said knob shaft and operable by said roll-out, said operator stem having a head extending into said cut-outs and locking said shanks in assembled relation, resilient means yieldably holding said stem with its head in said cut-outs, said head having a keeper slot located to be within said shanks when in retracted position, a lock dog non-rotatable mounted in one of said shanks for axial projection into said slot to hold the shank against turning and thereby to hold said stem against protraction, said dog and a wall of said slot having a cooperating tooth and recess for engagement to yieldably hold the dog within said head, a spring tending to retract said dog from said slot and being manually operable from a door knob to project said dog into said slot.

6. A door latch comprising a divided oscillatable knob shaft having independently turnable shanks nested within one another with door knobs on the shanks, said shanks having registerable cut-outs in their walls and a roll-out, a latch operator stem mounted to be reciprocable to and from said knob shaft and operable by said roll-out, a guide casing for said stem having detachable means to hold said stem in assembled relation with said shaft, said operator stem having a head extending into said cut-outs and locking said shanks in assembled relation, resilient means yieldably holding said stem with its head in said cut-outs, said head having a keeper slot located to be within said shanks when in retracted position, a lock dog non-rotatable mounted in one of said shanks for axial projection into said slot to hold the shank against turning and thereby to hold said stem against protraction, said dog and a wall of said slot having a cooperating tooth and recess for engagement to yieldably hold the dog within said head, a spring tending to retract said dog from said slot and being manually operable from a door knob to project said dog into said slot.

7. A door latch comprising a divided knob shaft having independently oscillatable shanks nested within one another with door knobs on the shanks, said shanks having registerable cut-outs in their walls constituting roll-outs, a latch operator stem mounted to be reciprocable to and from said knob shaft and operable by either of said roll-outs, said operator stem having a head extending into said cut-outs and locking said shanks in assembled relation, a spring for holding said stem with its head in said cut-outs and yieldably against said roll-outs, said head having a keeper slot located to be within said shanks when in retracted position, a lock dog mounted in said shanks for axial movement and extending through one knob for manual op-

eration and rotatable in the companion shank, said dog being mounted in the other shank to be restrained therein against rotation, said head being projectable into said slot to hold said stem against protraction and arranged to be restrained therein against rotation, said dog having an inclined surface for coaction with a wall of said slot to yieldably hold the dog within said head, said spring urging said stem into holding position with said dog, and resilient means tending to retract said dog from said slot, said dog being manually operable from a door knob to project said dog into said slot and said dog being releasable by oscillation of the knob through which it projects.

8. A door latch comprising a divided knob shaft having independently oscillatable shanks nested within one another with door knobs on the shanks, said shanks having registerable cut-outs in their walls constituting roll-outs, a latch operator stem mounted to be reciprocable to and from said knob shaft and operable by either of said roll-outs, said operator stem having a head extending into said cut-outs locking said shanks in assembled relation, a guide casing for said stem extending transverse to said shaft, a spring in said guide casing for holding said stem with its head in said cut-outs and yieldably against said roll-outs, said head having a keeper slot located to be within said shanks when in retracted position, a lock dog mounted in said shanks for axial movement and extending through one knob for manual operation and rotatable in the companion shank, said dog being mounted in the other shank to be restrained therein against rotation, said head being projectable into said slot to hold said stem against protraction and arranged to be restrained therein against rotation, said dog having an inclined surface for coaction with a wall of said slot to yieldably hold the dog within said head, said spring urging said stem into holding position with said dog, and resilient means tending to retract said dog from said slot, said dog being manually operable from a door knob to project said dog into said slot and said dog being releasable by oscillation of the knob through which it projects.

9. A door latch comprising a divided knob shaft having independently oscillatable shanks nested within one another with door knobs on the shanks, said shanks having registerable cut-outs in their walls constituting rolls-outs, a latch operator stem mounted to be reciprocable to and from said knob shaft and operable by either of said roll-outs, said operator stem having a head extending into said cut-outs and locking said shanks in assembled relation, a spring for holding said stem with its head in said cut-outs and yieldably against said roll-outs, said head having a keeper slot, a lock dog mounted in said shanks for axial movement and extending through one knob for manual operation and rotatable in the companion shank, said dog being mounted in the other shank to be restrained therein against rotation, said head being projectable into said slot to hold said stem against protraction and arranged to be restrained therein against rotation, said dog having an inclined surface for coaction with a wall of said slot to yieldably hold the dog within said head, said spring urging said stem into holding position with said dog, said resilient means tending to retract said dog from said slot, said dog being manually operable from a door knob to project said dog into said slot and said dog being releasable by oscillation of the knob through which it projects, and a roll-out member disposed in said shaft in the shank opposite to said dog, said roll-out member being disposed to protract said head and stem and being operable through the knob on said last mentioned shank.

10. A door latch comprising a divided knob shaft having independently oscillatable shanks nested within one another with door knobs on the shanks, said shanks having registerable cut-outs in their walls constituting roll-outs, a latch operator stem mounted to be reciprocable to and from said knob shaft and operable by either of said roll-outs, said operator stem having a head extending into said cut-outs and locking said shanks in assembled relation, a guide casing for said stem extending transverse to said shaft, a spring in said guide casing for holding said stem with its head in said cut-outs and yieldably against said roll-outs, said head having a keeper slot, a lock dog mounted in said shanks for axial movement and extending through one knob for manual operation and rotatable in the companion shank, said dog being mounted in the other shank to be restrained therein against rotation, said head being projectable into said slot to hold said stem against protraction and arranged to be restrained therein against rotation, said dog having an inclined surface for coaction with a wall of said slot to yieldably hold the dog within said head, said spring urging said stem into holding position with said dog, resilient means tending to retract said dog from said slot, said dog being manually operable from a door knob to project said dog into said slot and said dog being releasable by oscillation of the knob through which it projects, and a roll-out member disposed in said shaft in the shank opposite to said dog, said roll-out member being disposed to protract said head and stem and being operable through the knob on said last mentioned shank.

11. A door latch comprising a divided knob shaft having independently oscillatable shanks nested within one another with door knobs on the shanks, said shanks having reg-

isterable cut-outs in their walls constituting roll-outs, a latch operator stem mounted to be reciprocable to and from said knob shaft and operable by either of said roll-outs, said operator stem having a head extending into said cut-outs locking said shanks in assembled relation, a spring for holding said stem with its head in said cut-outs and yieldably against said roll-outs, said head having an elongated keeper slot with a serration extending along its inner wall, a lock dog mounted in said shanks for axial movement and extending through one knob for manual operation and rotatable in the companion shank, said dog having a transversely elongated inner end mounted in a corresponding opening formed in the other shank and thereby restrained therein against rotation and projectable into said slot to hold said stem against protraction, the inner end of said dog having a recess for coaction with said serration to yieldably hold the dog within said head, said spring urging said stem into holding position with said dog, resilient means tending to retract said dog from said slot, said dog being manually operable from a door knob to project said dog into said slot and said dog being releasable by oscillation of the knob through which it projects, and an oscillatable roll-out disposed in said other shank and engageable with the head of said stem to protract the latter, said last mentioned roll-out being operable through the door knob of said other shank whereby to release said stem from said dog.

12. A door latch comprising a divided knob shaft having a tubular casing, independently oscillatable shanks nested within one another with door knobs on the shanks and pivotally mounted in said tubular casing, said shanks having registerable cut-outs in their walls constituting roll-outs, a set-back guide casing extending through said tubular casing, a latch operator stem mounted to be reciprocable in said set-back casing to and from said knob shaft and operable by either of said roll-outs, said operator stem having a head extending into said cut-outs and locking said shanks in assembled relation, a spring in said set-back casing for holding said stem with its head in said cut-outs and yieldably against said roll-outs, said head having an elongated keeper slot with a serration extending along its inner wall, a lock dog mounted in said shanks for axial movement and extending through one knob for manual operation and rotatable in the companion shank, said dog having a transversely elongated inner end mounted in a corresponding opening formed in the other shank and thereby restrained therein against rotation and projectable into said slot to hold said stem against protraction, the inner end of said dog having a recess for coaction with said serration to yieldably hold the dog within said head, said spring urging said stem into holding position with said dog, resilient means tending to retract said dog from said slot, said dog being releasable by oscillation of the knob through which it projects, and an oscillatable roll-out disposed in said other shank and engageable with the head of said stem to protract the latter, said last mentioned roll-out having a stem pivotally mounted in said other shank and operable through the door knob of said other shank whereby to release said stem from said dog.

13. A door latch comprising a divided knob shaft having independently oscillatable shanks nested within one another with door knobs on the shanks, said shanks having registerable cut-outs in their walls constituting roll-outs, a latch operator stem mounted to be reciprocable to and from said knob shaft and operable by either of said roll-outs, said operator stem having a head extending into said cut-outs locking said shanks in assembled relation, a spring for holding said stem with its head in said cut-outs against said roll-outs, a latch bolt, a rocker coupling said stem to said bolt for reversing direction of movement, said head having an elongated keeper slot with a serration extending along its inner wall, a lock dog mounted in said shanks for axial movement and extending through one knob for manual operation and rotatable in the companion shank, said dog having a transversely elongated inner end mounted in a corresponding opening formed in the other shank and thereby restrained therein against rotation and projectable into said slot to hold said stem against protraction, the inner end of said dog having a recess for coaction with said serration to yieldably hold the dog within said head, said spring urging said stem into holding position with said dog, resilient means tending to retract said dog from said slot, said dog being releasable by oscillation of the knob through which it projects, and an oscillatable roll-out disposed in said other shank and engageable with the head of said stem to protract the latter, said last mentioned roll-out having a stem pivotally mounted in said other shank and operable through the door knob of said other shank whereby to release said stem from said dog.

14. A door latch comprising a divided knob shaft having a tubular casing, independently oscillatable shanks nested within one another with door knobs on the shanks and pivotally mounted in said tubular casing, said shanks having registerable cut-outs in their walls constituting roll-outs, a set-back guide casing extending through said tubular casing, a latch operator stem mounted to be reciprocable in said set-back casing to and from said knob shaft and operable by either of said roll-outs, said operator stem having a head extending into said cut-outs and locking said shanks in assembled relation, a spring in said set-back casing for holding said stem

with its head in said cut-outs and yieldably against said roll-outs, a latch bolt, a rocker pivotally mounted in said casing and coupling said stem to said bolt for reversing direction of movement, said head having an elongated keeper slot with a serration extending along its inner wall, a lock dog mounted in said shanks for axial movement and extending through one knob for manual operation and rotatable in the companion shank, said dog having a transversely elongated inner end being mounted in a corresponding opening formed in the other shank and thereby restrained therein against rotation and projectable into said slot to hold said stem against protraction, the inner end of said dog having a recess for coaction with said serration to yieldably hold the dog within said head, said spring urging said stem into holding position with said dog, resilient means tending to retract said dog from said slot, said dog being releasable by oscillation of the knob through which it projects, and an oscillatable roll-out disposed in said other shank and engageable with the head of said stem to protract the latter, said last mentioned roll-out having a stem pivotally mounted in said other shank and operable through the door knob of said other shank whereby to release said stem from said dog.

In witness that I claim the foregoing I have hereunto subscribed my name this 12th day of January, 1931.

EDWALL JAMES BAUMÉ.