E. A. KLAGES.

COMBINATION CLOCK AND HOME SAVINGS BANK.

APPLICATION FILED AUG. 4, 1915.

1,216,138.

Patented Feb. 13, 1917.

2 SHEETS—SHEET 1.

FIG. 1.

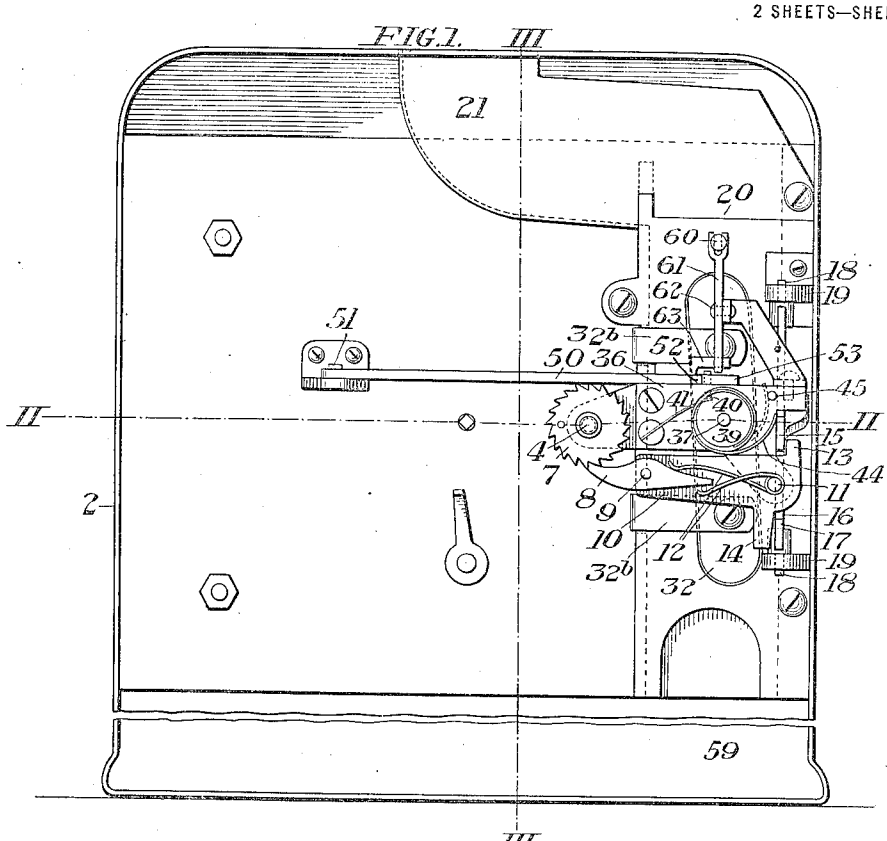


FIG. 2.

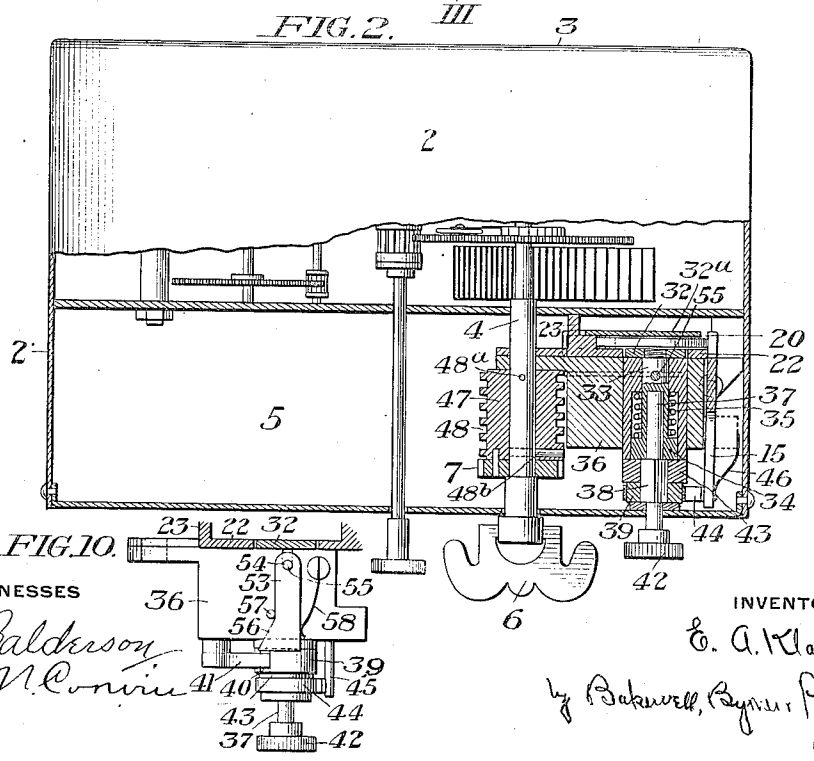


FIG. 10.

WITNESSES

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2 SHEETS—SHEET 2.

FIG. 3.

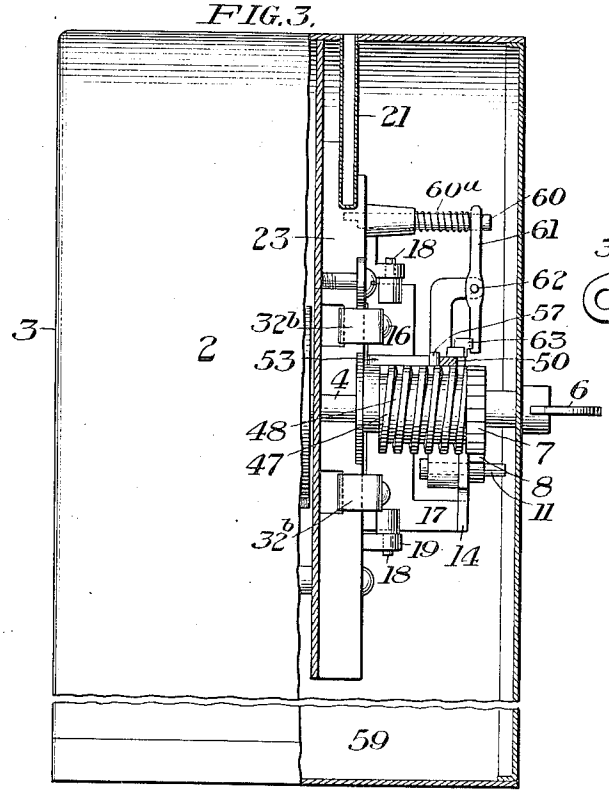


FIG. 5.

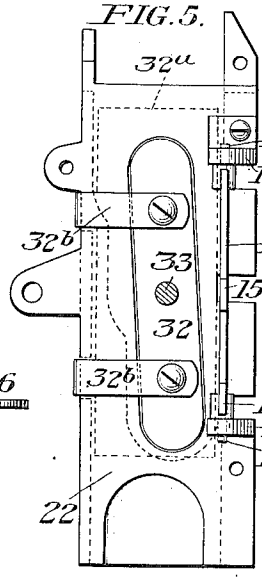


FIG. 6.

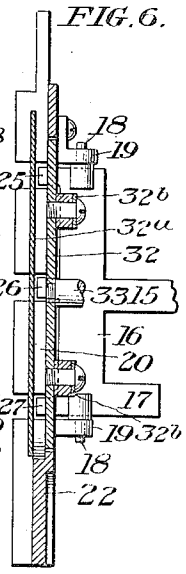


FIG. 7.

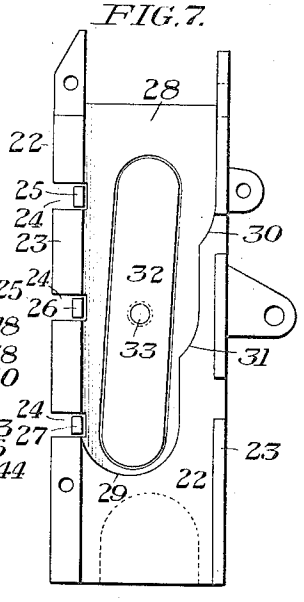


FIG. 4.

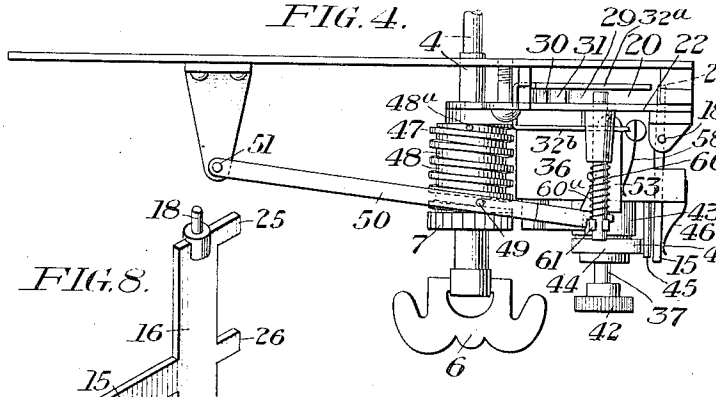
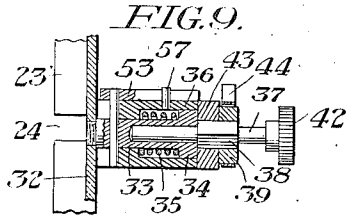


FIG. 8.

FIG. 9.



WITNESSES

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COMBINATION CLOCK AND HOME SAVINGS-BANK.

1,216,138. Specification of Letters Patent. Patented Feb. 13, 1917.

Application filed August 4, 1915. Serial No. 43,503.

To all whom it may concern:

Be it known that I, EDWARD A. KLAGES, a citizen of the United States, residing at Crafton, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Combination Clock and Home Savings-Bank, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a rear view, with a part of the casing removed, of a combination clock and savings bank embodying my invention.

Fig. 2 is a view of the same, partly in plan and partly in section, the plane of the section being on the line II—II of Fig. 1.

Fig. 3 is a view partly in side elevation and partly in section, the plane of the section being on the line III—III of Fig. 1.

Fig. 4 is a top plan view showing a portion of the mechanism.

Fig. 5 is a face view of the coin controlled and ejecting mechanism.

Fig. 6 is a vertical section through the same.

Fig. 7 is a face view from the opposite side of the coin chute.

Fig. 8 is a perspective view of the calipering member.

Fig. 9 is a detail sectional view illustrating the coin ejector mechanism, and

Fig. 10 is a detail plan view thereof.

My invention has relation to a combination clock and home savings bank. The object of my invention is to provide a device for the encouragement of saving, by combining with a necessary or useful article of household use, a savings device, the two being so related that the article cannot be used until a proper coin or coins have first been deposited in the savings bank. Thus, my invention provides a clock whose winding mechanism cannot be operated until a locking device therefor has been released by the placing in the bank of a proper coin or coins.

The particular nature of my invention will be best understood by reference to the accompanying drawings, in which I have shown a preferred embodiment thereof, and which will now be described, it being premised, however, that various changes can be made in the details of construction and arrangement of the several parts without departing from the spirit and scope of my invention as defined in the appended claims.

My invention can be in the nature of an attachment to a clock, or it may be embodied in the same casing with the clock mechanism. The latter construction is illustrated in the drawings.

In these drawings the numeral 2 designates a casing of any suitable character containing the usual clock mechanism and having a clock face (not shown) at its front side 3. 4 designates the main winding stem or post of the clock which, in accordance with my invention, is extended through a rear compartment 5 of the casing and is provided at its outer end with any suitable finger grasp or button 6. In the construction shown the post 4 is designed to be turned to the left, or in a counter-clockwise direction in winding the clock spring. Secured on the extension of the post 4 within the compartment 5 is a ratchet wheel 7 which, when engaged by a pawl 8, securely locks the winding post from being turned. This pawl is designed to be released by the insertion of a suitable coin or coins in the bank in the manner and by means of the devices which will now be described.

The pawl 8 is pivoted at 9 on a pawl carrier 10, which is in turn pivoted at 11. 12 is a spring bearing on the rear portion of the pawl and mounted on the carrier 10. This carrier has the upwardly projecting finger 13 and a downwardly projecting finger 14, the finger 13 engaging at one side a projection 15 of a coin calipering member 16, and the finger 14 engaging the opposite side of another projection 17 of said coin calipering device. This coin calipering device has the upper and lower end trunnions or pivots 18, which are mounted in suitable bearings in lugs 19 rigidly secured to the casing of the coin chute 20. This coin chute, having a coin entrance 21 at its upper end, is formed by a member 22 having the edge flanges 23, one of which is cut away at intervals, as shown at 24, to receive, respectively, the projecting calipering fingers 25, 26 and 27 of the member 16. The construction of the coin chute and the relative arrangement of the calipering device with respect thereto will be best understood by reference to Figs. 4, 5, 6, 7 and 8. The member 22 is cut away or is recessed to form the coin receiving cavity 28 between the edge flanges 23, this cavity terminating in the rounded bottom 29. In the particular instance shown, the wall of this cavity oppo-

site the slots 24 is formed with concave coin arresting shoulders 30 and 31, the cavity being of decreasing width toward its lower end, and the surfaces 30, 31 and 29 being so arranged that a coin of one dimension, say a dime, when dropped in the chute will fall to the bottom of the cavity and rest against the surface 29; a coin of larger size, such as a nickel, will be arrested at the surface 31; while a coin of still larger diameter, such as a quarter, will be arrested at 30. The opposite edge of each coin will be engaged by one of the calipering fingers 25, 26 or 27. The face portion of the member 22 is cut away to receive a member 32 which is movable in and out from a position in which its inner surface is substantially flush with the inner surface of the face portion of the member 22, to a position in which its inner surface is substantially flush with the inner surface of the member 23 below the cavity 28. 32^a is a plate having projections 32^b bent upon themselves to form yokes and are secured to the member 32. This plate 32^a forms one side of the coin chute and, together with the member 32, constitutes a coin ejecting device which is operated in the manner hereinafter described. It has attached thereto a pin or plug 33 having a head 34 at its outer end with a coil spring 35 seated against the inner face thereof. The plug is arranged to slide in an opening in the guide 36. 37 is a stem having a squared portion 38 arranged to engage an angular opening in a disk 39. This disk has a peripheral notch 40 adapted to be engaged by a spring pawl 41 to prevent the stem from being turned in the reverse direction. This is best shown in Figs. 1 and 10. The outer end of the stem is provided with a suitable actuating button 42. Also mounted on the angular portion 38 of the stem 37 is a disk 43 having a resilient cam surface preferably formed by a volute spring 44. As the button 42 is turned in a clockwise direction to rotate the cam, the free end of the spring 44 will first contact with a projecting pin 45 and will then snap into engagement with the projection 15 of the calipering member.

The calipering member is also engaged by a spring 46 whose pressure is exerted in the opposite direction to that of the spring cam. The action of the spring cam is, however, the stronger of the two. By reason of the fact, before described, that the fingers 13 and 14 of the pawl carrier project in opposite directions, the finger 13 engaging one side of the projection 15 of the coin calipering member and the finger 14 engaging the opposite side of the projection 17 of said device, and the two fingers 13 and 14 being at opposite sides of the pivot 11, it will be seen that the pressure of either the spring cam 44, or of the spring 46, will act upon the pawl carrier in a manner to hold the pawl 8 in locking engagement with the ratchet wheel 7 if either finger 13 or 14 is engaged by its respective projection 15 or 17. Normally, the spring cam 44 is in engagement with the projection 15 of the calipering member which holds it in engagement with the finger 13 of the pawl carrier 10 and retains the pawl in the position shown in Fig. 1. When a coin of the proper size is dropped into the coin chute, it will engage one of the calipering fingers 25, 26 or 27 which will arrest its downward movement; the spring cam is then rotated, and as soon as it clears the projection 15 the coin will drop onto its proper ledge 30, 31 or 29, as the calipering fingers will be moved in the reverse direction by means of the spring 46 which is normally in action. This movement of the calipering device in the reverse direction will cause the projection 17 to engage the finger 14 on the pawl carrier 10 and retain the pawl 8 in the position shown in Fig. 1. As the spindle 37 is rotated, the spring cam 44 will engage the pin 45 which will increase the tension thereof, and as the spindle 37 is rotated beyond this point the spring cam will snap off of the pin 45 and strike the member 15 a sharp blow, which will reverse the movement of the calipering device against the action of the spring 46 and bring its respective fingers 25, 26 or 27 against the coin in the chute, and bring the calipering device to the central position to unlock the pawl 8 and permit the clock to be rewound.

If a coin of too small diameter is present in the coin cavity, it will be seen that this will permit of a greater inward movement of the calipering finger under the action of the spring cam; and that this will result in a sufficient movement of the pawl calipering member to cause the projection 17 thereon to engage the finger 14 on the carrier to lock the ratchet 7. It is only, therefore, when a coin or coins of substantially the right size are present in the coin cavity, and the stem 37 is turned, that the lock is released.

It will be seen that the pawl carrying arm of the pawl carrier is relatively long with respect to its fingers which are engaged by the calipering device; and that the calipering device is so constructed and mounted that its portions which engage the pawl carrier form relatively longer lever arms than do the calipering projections. Consequently, a very slight difference in the degree of movement of the calipering fingers 25, 26 and 27 will effect a very considerable movement at the end of the pawl 8.

A slight amount of play or lost motion is provided between the projections 15 and 17 of the calipering member and the fingers 13 and 14 of the pawl carrier 10, so as to make provision for a slight wear of and reduction

in the diameter of the coins. This lost motion is, however, not sufficient to permit any slug or coin of materially less diameter than the predetermined size to be successfully used.

It will be seen that the winding mechanism of the clock may be released when either one of the three denominations of coins is inserted; when two of such coins are inserted, or when all three are inserted. This permits the user to deposit a greater or less amount in the bank each time the clock is wound, if desired.

For the purpose of automatically releasing the coin and restoring the lock after the clock is wound, I provide the following mechanism: 47 is a cylinder which is secured on the extension of the winding post 4, and which is provided on its periphery with a helical groove 48, having stops 48^a and 48^b near the ends thereof. Seated in this groove is a pin or stud 49 on a lever arm 50 which is pivoted at 51 to oscillate in a horizontal plane, the portion thereof which carries the pin 49 being capable of moving from stop to stop over the groove 48, and which stops are adapted to limit the winding and unwinding movement of the stem 4. Beyond the pin 49 the lever has a shoulder 52 which is adapted to contact with the end of a dog or pawl 53 which is pivoted at 54 on a pin 55 (see Figs. 4 and 10) extending through a slot in the guide 36 and passing through the pin or plug 33.

As the clock is wound up the pin 49 travels from the stop 48^a to the stop 48^b. As the clock now starts to run, the pin 49 moves back in the opposite direction and actuates the lever arm 50 to a position in which its shoulder portion engages the outer end of the pawl 53. This pawl has the beveled surface 56, and is normally pressed against the stop pin 57 by a spring 58 and which pin extends upwardly from the guide 36. As the lever 50 presses against the end of the pawl 53, the latter is forced inwardly through the force the ejector 32 inwardly through the medium of the pin 55 and plug 33. During this inward movement of the pawl the inclined surface 56 thereon will ride over the pin 57 which will cause it to move laterally, while the inward movement of the coin ejector 32 will push the coin from the seat on which it is resting and permit it to drop down through the chute into a suitable receptacle, such as 59. The movement given the pawl 53 by its inclined surface 56 riding against the pin 57 also throws said pawl backwardly out of engagement with said shoulder 52 and permits the coin ejector to return to its normal position. The pin 49 may be so located as to cause the coin to be ejected at any desired point in the unwinding movement.

In case a slug or coin of improper size has been inserted in the coin chute and coin cavity, it can be ejected at any time by pushing inwardly on the button 42, thereby actuating the ejector 32.

In order to prevent the device being tipped to permit a coin to roll out after the clock has been fully or completely wound, I may provide a guard device of the character now to be described. This device consists of a spring pressed sliding pin 60 arranged to project into the upper portion of the coin cavity. The outer end portion of this pin is engaged by one arm of a lever 61 pivoted at 62 and having its other arm in position to be engaged by an extension 63 of the lever 50 just before the pin 49 engages the stop 48^b. The guard pin 60 will thus be forced in across the upper portion of the coin cavity in position to prevent a coin being tipped or rolled out at the end of the winding movement, and will be retained in that position until after the clock has run a sufficient length of time to release the lower end of the lever 61 to permit the spring 60^a to return the pin 60 to its inoperative position, leaving the cavity free to receive another coin.

The advantages of my invention will be apparent, inasmuch as it provides a home savings bank device in useful form. The savings bank is combined with a useful and necessary article of household use, which cannot be used without a deposit of the proper coin or coins; and this furnishes a motive for the regular and systematic deposit of coins. In the ordinary home savings bank, this is largely a matter of convenience or whim; whereas by means of my invention it is made compulsory at such intervals as the clock requires to be wound.

I claim:

1. The combination with the winding mechanism of a clock, of a locking device therefor, a coin receptacle, a coin chute having a coin stop therein, means whereby the presence of a coin on said stop effects a release of said lock, means for ejecting the coin after the clock is re-wound, said means comprising a device operated by the winding movement of the winding mechanism, and means controlled by the winding mechanism to close the coin chute before the completion of the winding of the clock, substantially as described.

2. The combination with the winding mechanism of a clock, of a locking device therefor, a coin receptacle, a coin chute having a coin stop therein, means whereby the presence of a coin on said stop effects a release of said lock, means for ejecting the coin after the clock is rewound, and a coin guard for preventing the removal of a coin after it has been inserted, and operating connections between said guard and the winding mechanism of the clock, substantially as described.

3. The combination with a clock having a winding mechanism, a locking device for said mechanism, a coin receptacle, a coin chute or passage arranged to deliver coins into the receptacle, a calipering device for the coins, means for retaining the calipering device in one of its two extreme positions, and means controlled by a coin for preventing the calipering device moving to one of its extreme positions for releasing said lock, substantially as described.

4. The combination with a clock having a winding mechanism, of a lock therefor, a coin receptacle, a coin chute or passage arranged to deliver coins into the said receptacle, said chute or passage having a plurality of coin arresting means for arresting coins of different sizes, and devices whereby the presence of a proper sized coin in any one or more of the arresting means will cause the release of said lock, substantially as described.

5. The combination with a clock having a winding mechanism, of a lock therefor, a coin receptacle, a coin chute or passage arranged to deliver coins into the said receptacle, said chute or passage having a plurality of coin arresting means, and devices whereby the presence of a proper sized coin in any one or more of the arresting means will cause the release of said lock, said devices comprising a calipering member having a plurality of calipering portions adjacent to the different coin arresting means, substantially as described.

6. The combination with a clock having a winding mechanism, a lock therefor, a coin receptacle, a coin chute arranged to deliver coins into said receptacle, a calipering device coöperating with said chute and arranged to be oscillated, and arranged to be arrested in its movement in one direction by a coin to release said lock, and means for automatically ejecting the coin at the proper time, substantially as described.

7. The combination with a clock having a winding mechanism, a lock therefor, a coin receptacle, a coin chute arranged to deliver coins into said receptacle, a movable calipering device coöperating with said chute, and arranged to be arrested by a coin to release said lock, and means for automatically ejecting the coin at the proper time, together with means whereby a coin or false coin may be manually ejected into the receptacle, substantially as described.

8. The combination with a clock having a winding mechanism, of a locking pawl therefor, a pivoted carrier for said pawl, a coin calipering device engaging and controlling the movements of the pawl carrier, and a coin chute having coin arresting means coöperating with the calipering device, substantially as described.

9. The combination with a clock having a winding mechanism, of a lock therefor comprising a pawl, a movable carrier for the pawl, a movable calipering device cooperating with the carrier and arranged to hold the pawl in locking engagement in either of its two extreme positions, and means on said calipering device for arresting the movement thereof to permit the pawl carrier to drop to disengage the pawl to permit the clock to be wound; substantially as described.

10. In a device of the character described, the combination with a locking mechanism having a pawl, a movable pawl carrier, and a movable coin calipering device coöperating with the pawl carrier, said calipering device having a plurality of differently arranged calipering members for engagement with coins of different sizes.

11. The combination with a clock having a winding mechanism, of a lock therefor, a coin controlled release for said lock, and means for limiting the movement of the winding mechanism in both directions, substantially as described.

12. In a device of the character described, the combination with a locking mechanism having a pawl, a movable pawl carrier, a movable coin calipering device coöperating with the pawl carrier, and a rotary spring cam for actuating the pawl carrier, substantially as described.

In testimony whereof, I have hereunto set my hand.

EDWARD A. KLAGES.

Witnesses:
JESSE B. HELLER,
H. M. CORWIN.